Project No. 1251-100

Crude Oil Tank Farms Project, Agrood Area 30 (Module-1)

PETROJET Enppi EGPC

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
1	**Mechanical Completion Certificate (MCC)**	
2	**Ready for Startup Certificate (RFSU)**	
3	**System Punch Lists**	
4	**System Limits Marked Up P&ID**	
5	**System Index**	
6	**Piping Pre-Commissioning**	
	6.01) Piping Test Packs	
	6.02) Piping Pre-commissioning Check Lists	
7	**Piping Commissioning**	
	7.01) Service Test, GLT, CLT and N2 Purging Certificates	
	7.02) Piping Commissioning Check Lists	

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
8	**Mechanical Pre-Commissioning**	
	8.01) System Mechanical Index	
	8.02) Equipment Drawings	
	8.03) Equipment Datasheets	
	8.04) Boxing-up Certificates	

	8.05) Grouting Certificates	
	8.06) Pre-Alignment Certificates	
	8.07) Mechanical Pre-Commissioning Checklists	

9	**Mechanical Commissioning**	
	9.01) Final Alignment Certificates	
	9.02) Motor Solo Run Certificates	
	9.03) Mechanical Run Test (MRT) Certificates	
	9.04) Mechanical Commissioning Checklists	
	9.05) Mechanical Supplier Check Lists & Reports	

10	**Instrumentation Pre-Commissioning**	
	10.01) System Instrument Index	
	10.02) Instrument Data Sheets	
	10.03) Instrument Cable Schedule	
	10.04) System Instrumentation Wiring Diagram	
	10.05) Hook-up Drawing (Mechanical & Pneumatic)	
	10.06) Instruments Cables Schedule	
	10.07) Instruments Cables Laying Certificates	
	10.08) Instruments Cables Termination Certificates	
	10.09) Instruments Cables Testing Certificates	
	10.10) Instruments Calibration Certificates	
	10.11) Instrument Loop Checks Certificates	
	10.12) Instrumentation Pre-Commissioning Check Lists	
	10.13) Instrumentation Supplier Check Lists & Reports	

11	**Instrumentation Commissioning**	
	11.01) Instrumentation Function Test Certificates	
	11.02) Instrumentation Supplier Check Lists & Reports	

Sr.	Pre-Commissioning and Commissioning Dossier Index	Applicable (Yes/No)
12	**Electrical Pre-Commissioning**	
	12.01) System Electrical Index	
	12.02) Electrical Drawings	
	12.03) Motor Datasheets	
	12.04) Electrical Cables Schedule	
	12.05) Electrical Cables Laying Certificates	
	12.06) Electrical Cables Testing Certificates	
	12.07) Electrical Cables Termination Certificates	
	12.08) FAT Reports & Certificates	
	12.09) SAT Reports & Certificates	
	12.10) Electrical Pre-Commissioning Check Lists	
	12.11) Electrical Supplier Check Lists & Reports	

13	**Electrical Commissioning**	
	13.01) Electrical -Commissioning Check Lists	
	13.02) Electrical Supplier Check Lists & Reports	
14	**Red Marked-up Drawings**	
	14.01) P&ID	
	14.02) Instrumentation Drawings	
	14.03) Electrical Drawings	

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

Pre-commissioning and Commissioning Dossier Content:

Section		Description	Status
1-	Mechanical Completion Certificate (MCC) Ready For Start-up (RFSU)		
2-	System Punch Lists		
3-	System Limits Marked Up		
4-	FAT Test Report & Certificates		
5-	System Index.		
6.A-	Electrical Pre-commissioning		
	6.A.1	General Arrangement and Wiring Diagrams	
	6.A.2	Single line Diagram	
	6.A.3	Electrical Panel Schedule	
	6.A.4	Electrical Cable Schedule	
	6.A.5	Pre-Commissioning Check List	
6.B-	Electrical Commissioning		
	6.B.1	Commissioning Check List	
7-	Red Mark-Up Drawings (If Any)		

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

1-Mechanical Completion Certificate (MCC)

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SYSTEM MECHANICAL COMPLETION CERTIFICATE (MCC)

PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)

PROJECT No : 01251-100

SYSTEM NAME : Substation AC/DC UPS's and Batteries System

SYSTEM ID : 030-EL-006

THIS IS TO CERTIFY THAT:

- THE ABOVE SYSTEM HAS BEEN FABRICATED, ERECTED, INSTALLED AND TESTED TO THE REQUIREMENTS OF THE CONTRACT DRAWINGS, SPECIFICATIONS, THE APPLICABLE CODES AND STANDARDS.
- ALL PRE-COMMISSIONING RELEVANT ACTIVITIES, TESTS, INSPECTIONS AND CHECKS HAVE BEEN CARRIED OUT FOR THIS SYSTEM AND FOUND ACCEPTABLE.
- Q/C DOCUMENTATION OF THE ABOVE SYSTEM HAS BEEN AUDITED BY THE CUSTOMER SITE QUALITY CONTROL AND FOUND COMPLETED.
- ALL PUNCH LIST ITEMS CATEGORY (A) IN THIS SUBSYSTEM WERE CLEARED.
- THIS SYTEM IS MECHANICALLY COMPLETED ON THE DATE 01/04/2021 AND READY FOR COMMISSIONING (RFC) WITH THE FOLLOWING EXCEPTIONS.

EXCEPTIONS :

COMPANY	PETROJET	ENPPI	PMC
NAME	M.abd allah	M. Abbass	M.omar
TITLE	Q.c engineer	[signature]	
SIGNATURE	[signature]	Site Mgr.	18/05/2021
DATE	12/04/2021	12/04/2021	

2- Ready for Startup Certificate (RFSU)

PETROJET Enppi EGPC

READY FOR START UP CERTIFICATE

PROJECT TITLE	: EGPC CRUDE OIL TANK FARMS PROJECT (AGROOD-02)
PROJECT No.	: 1251-100
SYSTEM /AREA /PLANT	: Substation AC/DC UPS's and Batteries System
SYSTEM /AREA /PLANT No.	: 030-EL-006

THIS IS TO CERTIFY THAT:

- THE MENTIONED SYSTEM /AREA /PLANT IS READY FOR START UP WHERE ALL MECHANICAL WORKS, PRECOMMISSIONING AND COMMISSIONING ACTIVITIES HAVE BEEN SUCCESSFULLY COMPLETED.
- MECHANICAL COMPLETION CERTIFICATE(S) FOR THE MENTIONED SYSTEM / AREA / PLANT HAVE BEEN SIGNED.
- ISSUANCE OF THIS READY FOR START UP CERTIFICATE(S) SHALL NOT RELIEVE CONTRACTOR(S) FROM THEIR OBLIGATIONS TO COMPLETE THE REMAINING SYSTEMS NOR FROM THEIR WARRANTY OBLIGATIONS AND OTHER PROVISIONS OF THE CONTRACT.
- THE FOLLOWING EXCEPTIONS AGREED TO BE CLEARED AFTER START UP AND WILL NOT PREVENT START UP ACTIVITIES.

EXCEPTIONS :

Ahmed El Shafo
comm leader 11-4-2021

COMPANY	CONSORTIUM	PPC
NAME	Ahmed Nadeem	M. Ibrahim
TITLE	Elec. Engineer	Elec - engineer
SIGNATURE	[signature]	[signature]
DATE	/4/2021	

3- System Punch Lists

PETROJET Enppi

PUNCH LIST

EGPC

PROJECT TITLE : CRUDE OIL TANK FARM PROJECT (AGROOD AREA)	
PROJECT NUMBER : 01251-100	**DISCIPLINE:** Electrical
SYSTEM NAME: Substation AC/DC UPS's and Batteries System	**SYSTEM ID:** 030-EL-06
SUB-SYSTEM NAME:	**SUB-SYSTEM ID:**

NO	DESCRIPTION	CAT	ACTION BY	DISP	CLEARANCE APPROVED BY
1	Tag No. for T090 & T090T2-B to be				
	Modified by Vendor.	C	Enppi	ELE	
2	Cables P_030-SUB-ACUPS_BP to be installed.	B	PTJ	ELE	[signature]
3	Cable P1-030-SUB_ACUPS-1 to be installed.	A	PTJ	ELE	[signature]

CAT: CATEGORY(A,B,C) ,ACTION BY: (ENPPI,CONST.CONTRACTOR,SUPPLIER.....) , DISP: DESCIPLINE(PIP,MECH,ELECT,INST.......)

COMPANY	PTJ	ENPPI	PMC
NAME		[signature]	M. omar
SIGN.	[signature]	[signature]	[signature]
DATE			28-3-2021

4- System Limits Marked Up P&ID

5- System Index

6- Piping Pre-Commissioning

6.01- Piping Test Packs

6.02- Piping Pre-commissioning Check Lists

7- Piping Commissioning

7.01- Service Test, GLT, CLT and N2 Purging Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

7.02- Piping Commissioning Check Lists

8- Mechanical Pre-Commissioning

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

8.01- System Mechanical Index

8.02- Equipment Drawings

8.03- Equipment Datasheets

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

8.04- Boxing-up Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

8.05- Grouting Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

8.06- Pre-Alignment Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

8.07- Mechanical Pre-Commissioning Checklists

9- Mechanical Commissioning

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

9.01- Final Alignment Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

9.02- Motor Solo Run Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

9.03- Mechanical Run Test (MRT) Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

9.04- Mechanical Commissioning Checklists

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

9.05- Mechanical Supplier Check Lists & Reports

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10- Instrumentation Pre-Commissioning

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.01- System Instrument Index

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.02- Instrument Data Sheets

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.03- Instrument Cable Schedule

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.04- System Instrumentation Wiring Diagram

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.05- Hook-up Drawing (Mechanical & Pneumatic)

System ID	030-EL-006
System Description	**Substation AC/DC UPS's and Batteries System**

10.06- Instruments Cables Schedule

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.07- Instruments Cables Laying Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.08- Instruments Cables Termination Certificates

System ID	030-EL-006
System Description	**Substation AC/DC UPS's and Batteries System**

10.09- Instruments Cables Testing Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.10- Instruments Calibration Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.11- Instrument Loop Checks Certificates

System ID	030-EL-006
System Description	**Substation AC/DC UPS's and Batteries System**

10.12- Instrumentation Pre-Commissioning Check Lists

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

10.13- Instrumentation Supplier Check Lists & Reports

11- Instrumentation Commissioning

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

11.01- Instrumentation Function Test Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

11.02- Instrumentation Supplier Check Lists & Reports

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12- Electrical Pre-Commissioning

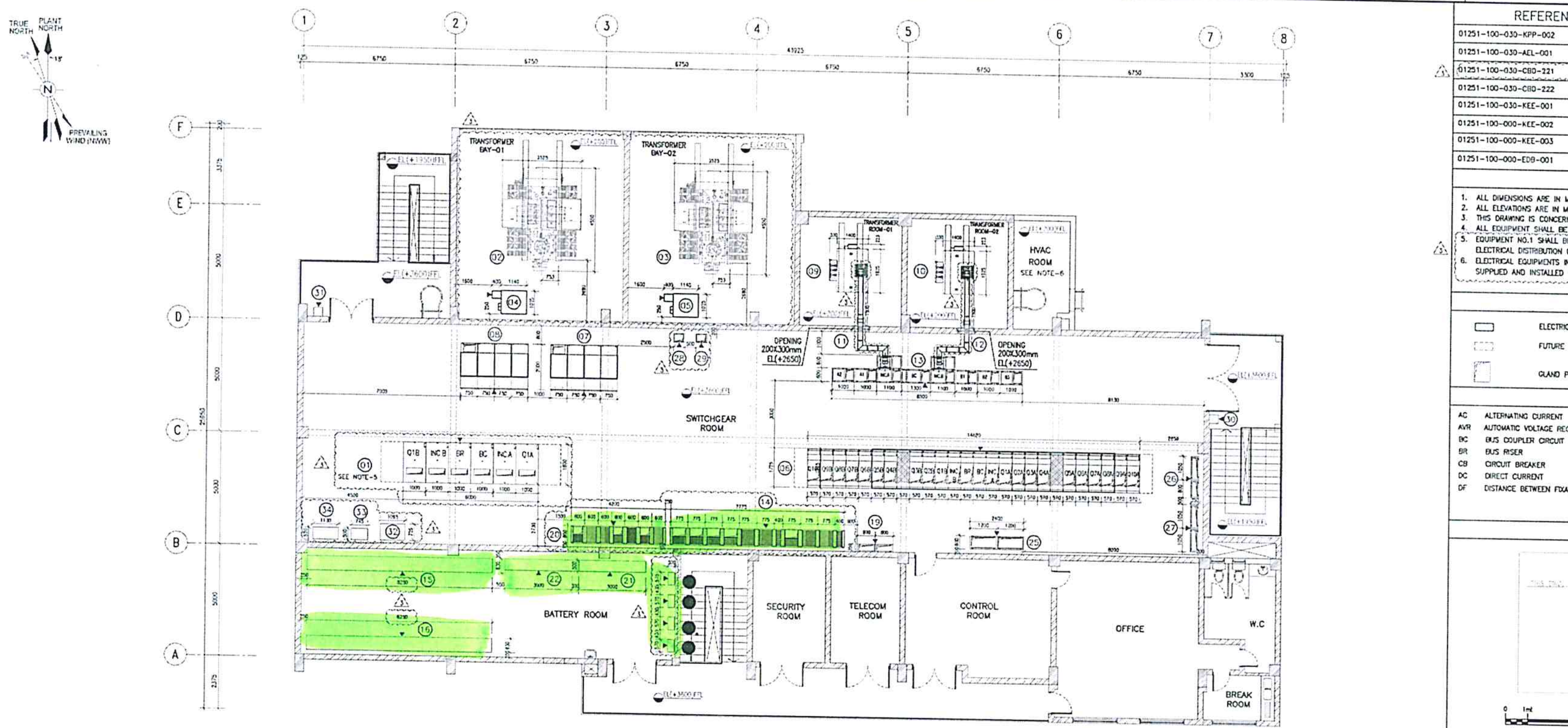
System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.01- System Electrical Index

	System Description	Discipline	Tag Number	Tag Description	Form Type	Check Forms ID
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	030-SUB-ACUPS-01	AC UPS's and Batteries	Checklist	EL-12 A /EL-30 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	030-SUB-DCUPS-01	DC UPS's and Batteries	Checklist	EL-08 A /EL-30 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C1-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C1-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C2-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C2-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C3-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C3-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C4-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C4-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C5-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C5-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C6-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	C6-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-ACUPS-1-BAT-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-ACUPS-1-BAT-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-ACUPS-CB-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-ACUPS-CB-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-DCUPS-1-BAT-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-DCUPS-1-BAT-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-DCUPS-CB-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D1-030-SUB-DCUPS-CB-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-ACUPS-1-BAT-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-ACUPS-1-BAT-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-ACUPS-CB-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-ACUPS-CB-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-DCUPS-1-BAT-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-DCUPS-1-BAT-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-DCUPS-CB-A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	D2-030-SUB-DCUPS-CB-B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P-030-SUB-ACUPS-1A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P-030-SUB-ACUPS-1B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P-030-SUB-ACUPS-BP	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P-030-SUB-DCUPS-1A	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P-030-SUB-DCUPS-1B	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P1-030-SUB-ACUPS-1	LV Cable	Checklist	EL-31 A
030-EL-006	Substation AC/DC UPS's and Batteries System	Electrical	P1-030-SUB-DCUPS-1	LV Cable	Checklist	EL-31 A

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

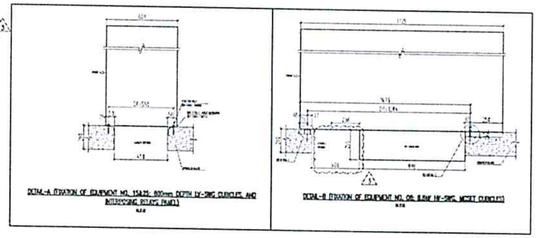
12.02- Electrical Drawings

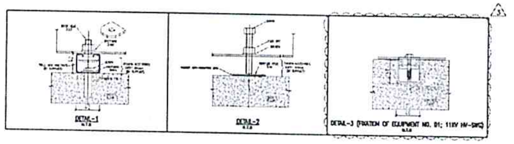


ELECTRICAL EQUIPMENT LIST

EQUIPMENT NO.	EQUIPMENT TAG	DESCRIPTION	FIXATION
01	030-SUB-HVSWG-11	11KV, 1250A AIR INSULATED SWITCHGEAR	FLOOR
02	030-SUB-PTR-1A	11/6.6KV, 8MVA OIL POWER TRANSFORMER	FLOOR
03	030-SUB-PTR-1B	11/6.6KV, 8MVA OIL POWER TRANSFORMER	FLOOR
04	030-SUB-NER-1A	6.6/√3KV, 200A/10SEC NEUTRAL EARTHING RESISTOR	FLOOR
05	030-SUB-NER-1B	6.6/√3KV, 200A/10SEC NEUTRAL EARTHING RESISTOR	FLOOR
06	030-SUB-HVSWG-6.6	6.6KV, 1250A AIR INSULATED SWITCHGEAR	FLOOR
07	030-SUB-PFC-1A	6.6KV, 360KVAR POWER FACTOR CORRECTION	FLOOR
08	030-SUB-PFC-1B	6.6KV, 360KVAR POWER FACTOR CORRECTION	FLOOR
09	030-SUB-TR-1A	6.6/0.4KV, 1000KVA DRY-TYPE DISTRIBUTION TRANSFORMER	FLOOR
10	030-SUB-TR-1B	6.6/0.4KV, 1000KVA DRY-TYPE DISTRIBUTION TRANSFORMER	FLOOR
11	030-SUB-LVBD-1A	0.4KV, 2000A LOW VOLTAGE BUS DUCT	----
12	030-SUB-LVBD-1B	0.4KV, 2000A LOW VOLTAGE BUS DUCT	----
13	030-SUB-LVSWG-1	0.4KV, 2000A AIR INSULATED SWITCHGEAR	FLOOR
14	030-SUB-ACUPS-1	400VAC, 50KVA AC UNINTERRUPTED POWER SUPPLY	FLOOR
15	030-SUB-ACUPS-1-BATT-A	BATTERY RACK-A FOR AC UPS	FLOOR
16	030-SUB-ACUPS-1-BATT-B	BATTERY RACK-B FOR AC UPS	FLOOR
17	030-SUB-ACUPS-CB-A	BATTERY RACK-A CIRCUIT BREAKER BOX FOR AC UPS	WALL
18	030-SUB-ACUPS-CB-B	BATTERY RACK-B CIRCUIT BREAKER BOX FOR AC UPS	WALL

EQUIPMENT NO.	EQUIPMENT TAG	DESCRIPTION	FIXATION
19	030-SUB-UPDP-1	UPS POWER DISTRIBUTION PANEL	WALL
20	030-SUB-DCUPS-1	110VDC, 75A DC UNINTERRUPTED POWER SUPPLY	FLOOR
21	030-SUB-DCUPS-1-BATT-A	BATTERY RACK-A FOR DC UPS	FLOOR
22	030-SUB-DCUPS-1-BATT-B	BATTERY RACK-B FOR DC UPS	FLOOR
23	030-SUB-DCUPS-CB-A	BATTERY RACK-A CIRCUIT BREAKER BOX FORDC UPS	WALL
24	030-SUB-DCUPS-CB-B	BATTERY RACK-B CIRCUIT BREAKER BOX FOR DC UPS	WALL
25	030-SUB-IRP-1	INTERPOSING RELAY PANEL	FLOOR
26	030-SUB-ASP-1	AUXILIARY SERVICE PANEL	FLOOR
27	030-SUB-LPDP-1	INDOOR LIGHTING AND SMALL POWER DISTRIBUTION PANEL	FLOOR
28	030-SUB-AVR-1A	AVR PANEL FOR ON-LOAD TAP CHANGER OF 030-SUB-PTR-1A	WALL
29	030-SUB-AVR-1B	AVR PANEL FOR ON-LOAD TAP CHANGER OF 030-SUB-PTR-1B	WALL
30	030-SUB-EPS-1	SUBSTATION EMERGENCY PUSH BUTTON	WALL
31	030-SUB-EPS-2	SUBSTATION EMERGENCY PUSH BUTTON	WALL
32	------	6.6KV HV SWG LIFTING TRUCK	----
33	------	6.6KV HV SWG EARTHING TRUCK	----
34	------	LV SWG LIFTING TRUCK	----





REFERENCE DRAWING AND DOCUMENTS

01251-100-030-KPP-002	AGROOD AREA (MODULE-1) PLOT PLAN
01251-100-030-AEL-001	AGROOD AREA (MODULE-1) MASTER EQUIPMENT LIST
01251-100-030-CBD-221	SUBSTATION CELLAR FLOOR PLAN
01251-100-030-CBD-222	SUBSTATION FIRST FLOOR PLAN
01251-100-030-KEE-001	AGROOD AREA (MODULE-1) GENERAL ELECTRICAL SINGLE LINE DIAGRAM
01251-100-000-KEE-002	ELECTRICAL SINGLE LINE DIAGRAM 6.6kV HIGH VOLTAGE MOTOR CONTROL CENTER
01251-100-000-KEE-003	ELECTRICAL SINGLE LINE DIAGRAM LOW VOLTAGE MOTOR CONTROL CENTER
01251-100-000-EDB-001	ELECTRICAL DESIGN BASIS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS.
2. ALL ELEVATIONS ARE IN MILLIMETERS.
3. THIS DRAWING IS CONCERNED ONLY WITH SUBSTATION ELECTRICAL EQUIPMENT.
4. ALL EQUIPMENT SHALL BE BOTTOM ENTRY UNLESS OTHERWISE INDICATED.
5. EQUIPMENT NO.1 SHALL BE SUPPLIED AND INSTALLED BY EGPC/CANAL ELECTRICAL DISTRIBUTION COMPANY.
6. ELECTRICAL EQUIPMENTS INSIDE HVAC ROOM (HVAC MCC & LCP) SHALL BE SUPPLIED AND INSTALLED BY PETROJET.

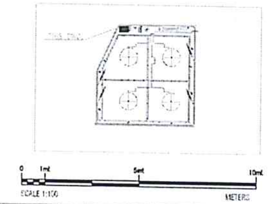
LEGEND

- ELECTRICAL EQUIPMENT
- FUTURE ELECTRICAL EQUIPMENT
- GLAND PLATE
- EQUIPMENT FRONT
- EQUIPMENT NUMBER
- DUMMY PANEL

ABBREVIATIONS

AC	ALTERNATING CURRENT
AVR	AUTOMATIC VOLTAGE REGULATOR
BC	BUS COUPLER CIRCUIT BREAKER
BR	BUS RISER
CB	CIRCUIT BREAKER
DC	DIRECT CURRENT
DF	DISTANCE BETWEEN FIXATION POINTS
HV	HIGH VOLTAGE
INC	INCOMER CIRCUIT BREAKER
LV	LOW VOLTAGE
Q	OUTGOING CIRCUIT BREAKER
SWG	SWITCHGEAR
UPS	UNINTERRUPTIBLE POWER SYSTEM

KEY PLAN



SCALE 1:100 METERS

REV	DATE	DESCRIPTION	BY	CHECKED	DESIGNED	APPROVED
3	24 08 20	RE-ISSUED FOR CONSTRUCTION	R.M	SH.A	M.R	M.A
2	05 05 20	ISSUED FOR CONSTRUCTION	M.M.A	SH.A	M.R	M.A
1	14 11 19	RE-ISSUED FOR DESIGN	M.M.A	SH.A/M.A	M.A.R	H.A
0	17 09 19	ISSUED FOR DESIGN	M.M.A	SH.A/M.A	M.A.R	H.A

NOTICE
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EGPC
THE EGYPTIAN GENERAL PETROLEUM CO. — الهيئة العامة المصرية للبترول

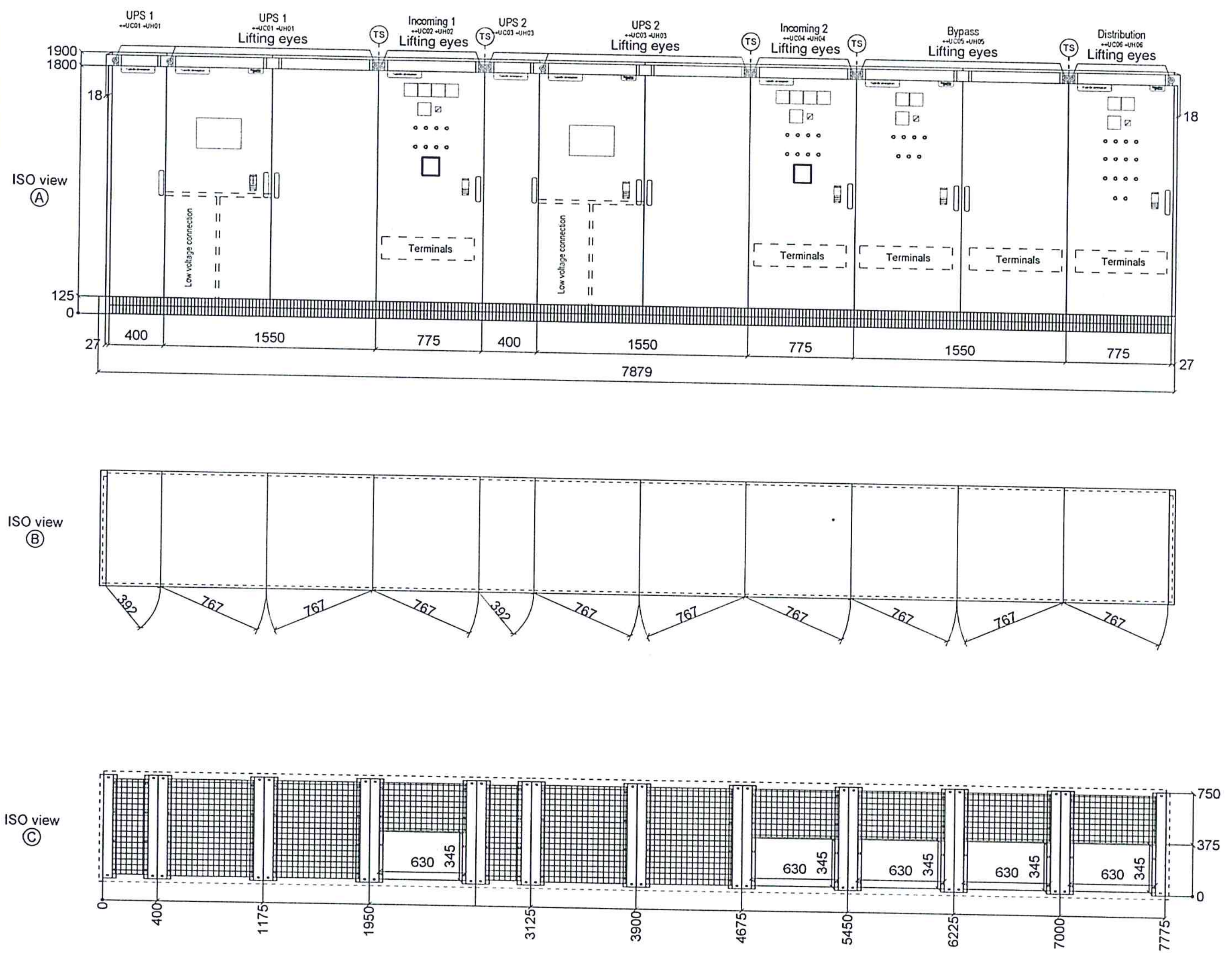
FOR : THE EGYPTIAN GENERAL PETROLEUM CORPORATION (EGPC) — لاجل الهيئة العامة المصرية للبترول

AT : AGROOD — الموقع : عجرود

EGPC CRUDE OIL TANK FARM
AGROOD AREA (MODULE-1)
SUBSTATION ELECTRICAL EQUIPMENT LAYOUT

الشركة الهندسية للصناعات البترولية والكيماوية
Enppi إنبى
ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

SCALE	ENPPI DRAWING NUMBER	SHEET	REVISION
1:100	01251-100-030-EEB-001	1 OF 1	3



*NOTE
LIST LOOSE CABLE SUPPLY BY SCHNEIDER,
1. DC CABLE (FROM BATTERIES TO CB & FROM CB TO UPS)
2. CONTROL CABLE (FROM TEMP. SENSOR BOX TO UPS)
3. CONTROL CABLE FOR CB BOX ALARM STATUS TO UPS
4. CABLE GLANDS AND CABLE LUGS FOR DC & CONTROL CABLES

Rev.	Date	Name	Project revision description
5	24.08.20	MHH	For Approval
4	18.08.20	ZUL	For Approval
3	08.07.20	ZUL	For Approval

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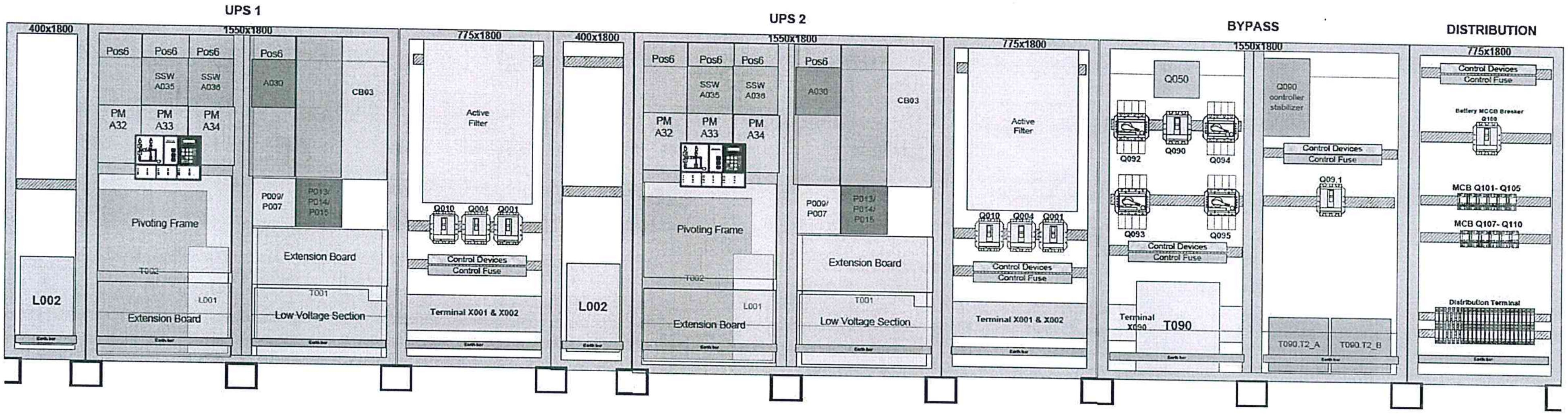
Customer name: ENPPI / EGPC
Project description: 400 VAC UPS for Crude Oil Tank Farm Project

Page description: General arrangement drawing
General arrangement

Document status: For Approval
System type: Gutor PDW 3060-220/400-EAN-R

Orig. ZUL | Revi. MHH | Appr. WKH | Date
Drawing number: 1200069001/00 &ELU
Page 3/66
Doc. Rev. Status: 5

FINAL INTERNAL GENERAL ARRANGEMENT



Rev.	Date	Name	Project revision description
5	24.08.20	MHH	For Approval
4	18.08.20	ZUL	For Approval
3	08.07.20	ZUL	For Approval

Schneider Electric
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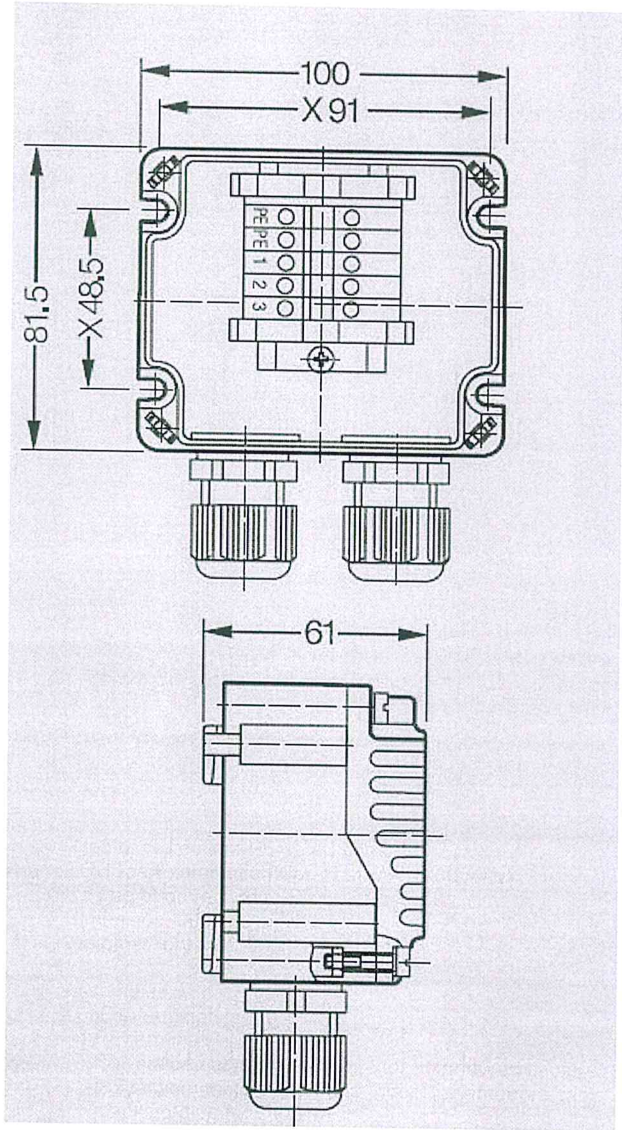
Document status: For Approval
System type: Gutor PDW 3060-220/400-EAN-R

Orig. MHH | Revi. MHH | Appr. WKH | Date
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Drawing number: 1200069001/00 &ELU
Page 5/66
Doc. Rev. Status: 5

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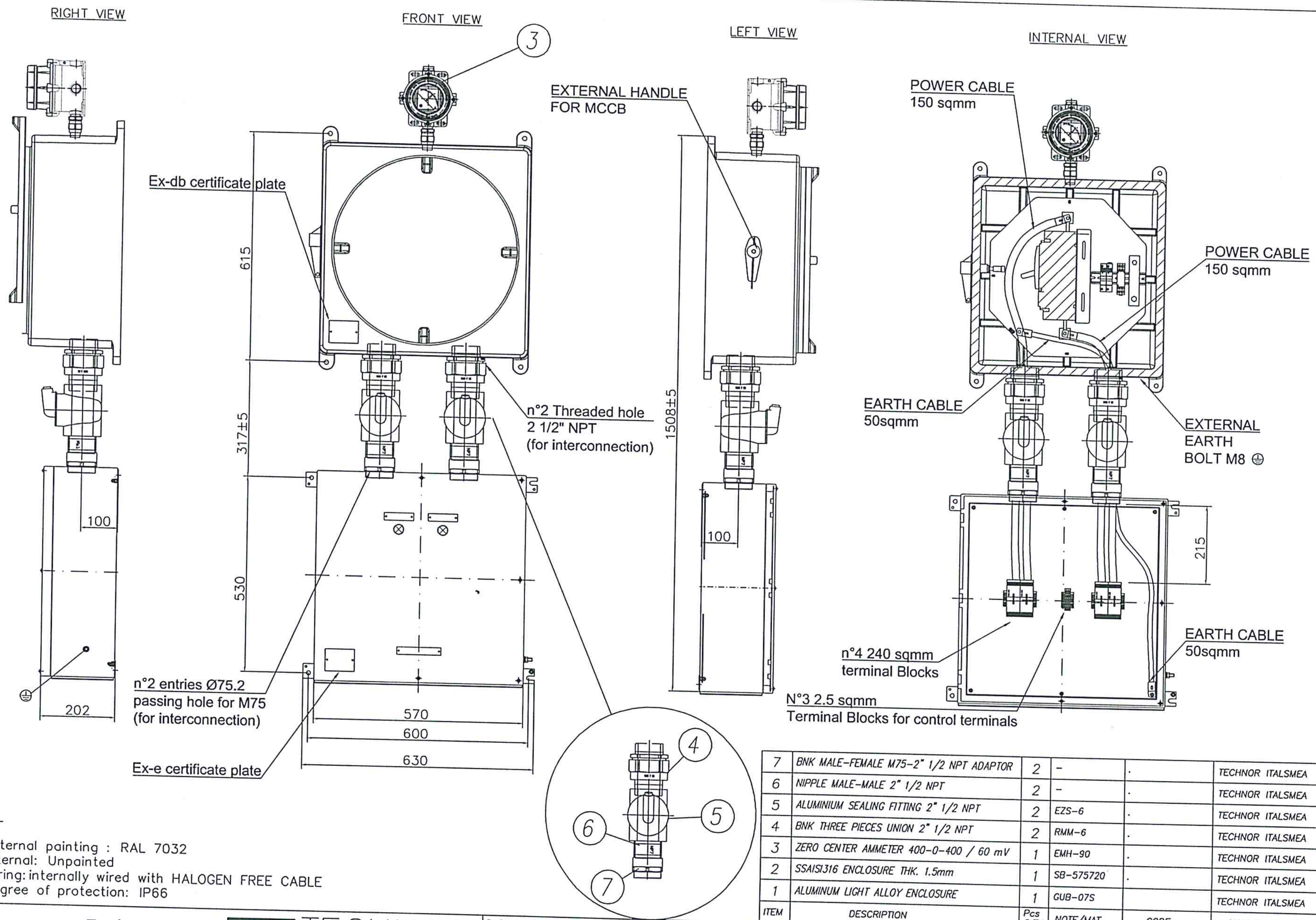
Battery temperature sensor box 1 & 2 to connect temperature sensor (0W3606)



Type of protection: EEx e IIC T6
EC-Type Examination Certificate: PTB 00 ATEX 3108
Degree of protection to EN 60529: IP 66
Dimension: 100 X 81.5 X 61
Weight : Approx. 0.3 kg

Assembled with:
- 6 Exe terminals up to 4mm2
- 4 PE terminals
- 1 Polyamide cable gland M 25 (for unamoured cable Æ 8 - 17 mm)
- 1 Polyamide cable gland M 20(Ø for 2 unamoured cable Æ 4,5-7 mm)
- 1 planking plug for cable Æ 4,5 – 7 mm

Rev.	Date	Name	Project revision description
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4	18.08.20	ZUL	For Approval
3	08.07.20	ZUL	For Approval



Notes :

- External painting : RAL 7032
- Internal: Unpainted
- Wiring: internally wired with HALOGEN FREE CABLE
- Degree of protection: IP66

ITEM	DESCRIPTION	Pcs Q.TY	NOTE/MAT.	CODE	MANUFACTURER
7	BNK MALE-FEMALE M75-2" 1/2 NPT ADAPTOR	2	-	.	TECHNOR ITALSMEA
6	NIPPLE MALE-MALE 2" 1/2 NPT	2	-	.	TECHNOR ITALSMEA
5	ALUMINIUM SEALING FITTING 2" 1/2 NPT	2	EZS-6	.	TECHNOR ITALSMEA
4	BNK THREE PIECES UNION 2" 1/2 NPT	2	RMM-6	.	TECHNOR ITALSMEA
3	ZERO CENTER AMMETER 400-0-400 / 60 mV	1	EMH-90	.	TECHNOR ITALSMEA
2	SSAISI316 ENCLOSURE THK. 1.5mm	1	SB-575720	.	TECHNOR ITALSMEA
1	ALUMINUM LIGHT ALLOY ENCLOSURE	1	GUB-07S	.	TECHNOR ITALSMEA

Explosion Proof
Electrical Equipment
Materiali Elettrici Antideflagranti

TECHNOR ITALSMEA
A COMPANY OF MARECHAL ELECTRIC

Project .
Description . . .

CLIENT -
P.O. n° -
M.R. n° -

Dwg. No. B053X12249121 — sh. 1 of 4
Drawn. Sacchi — Check Badr
App. Roncoroni — Date 20/07/2020
Scale N/A — Rev. 1 — S.O. E2000447

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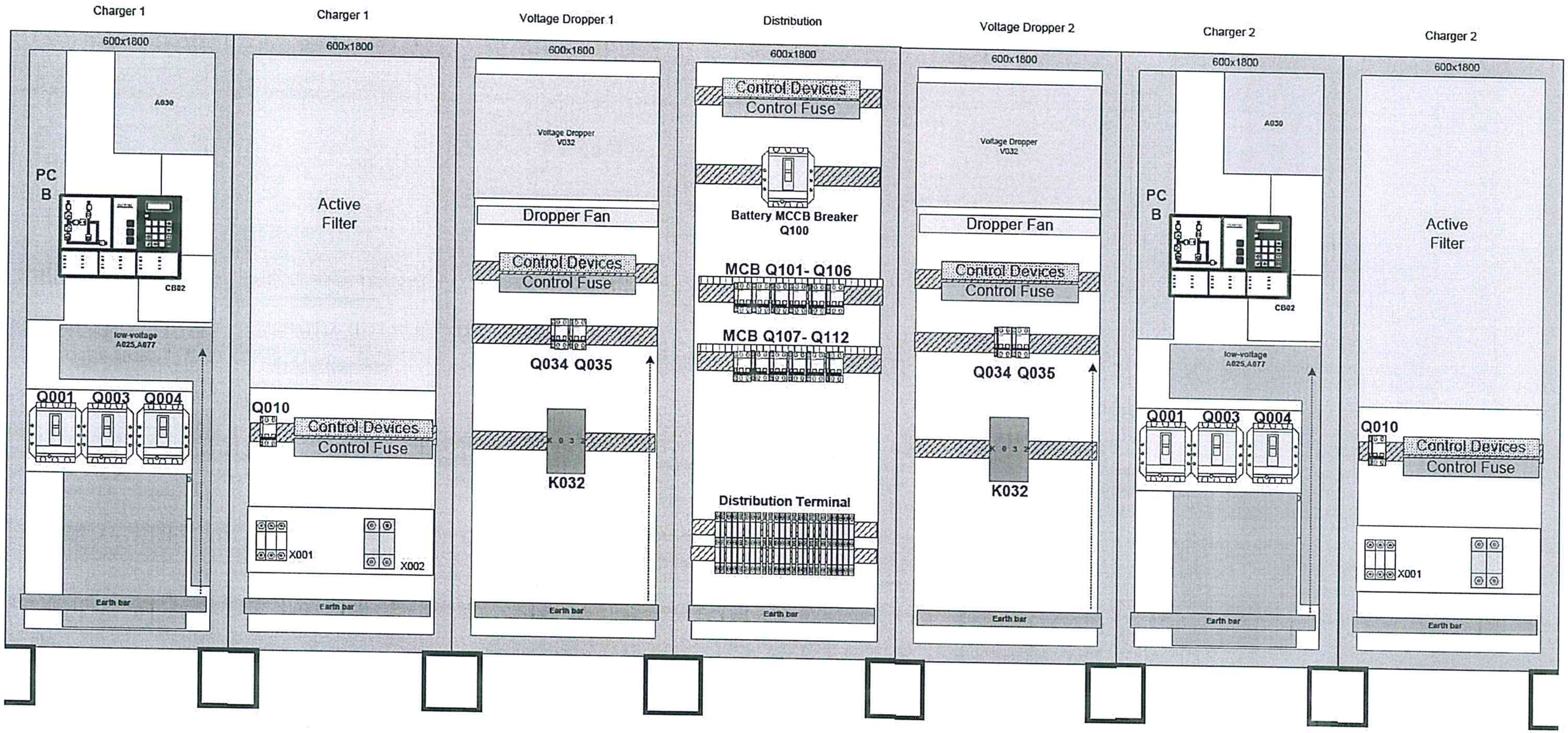
UNI A3 (297x420mm)

General Note:
Except otherwise writing, all the quotas are expressed in millimeters with the following tolerances:
- up to 6mm: ± 0.2mm
- over 6 and up to 30mm: ± 0.5mm
- over 30 and up to 100mm: ± 0.8mm
- over 100 and up to 300mm: ± 1.2mm
- over 300 and up to 1000mm: ± 2mm
- over 1000mm: ± 2mm
- angles: ± 1°

Note for Drilling stage:
Except where indicated:
- All isometric holes will be perpendicular to the side where they are realized
- For all standard components refer to the typical drilling drawings: LAV.MEC_STD-01, LAV.MEC_STD-02, LAV.MEC_STD-03
Se non diversamente indicato:
- I fori metrici saranno perpendicolari alla parete dove realizzati
- Per i componenti standard fare riferimento ai tipici di foratura : LAV.MEC_STD-01, LAV.MEC_STD-02, LAV.MEC_STD-03

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FINAL INTERNAL GENERAL ARRANGEMENT



Rev.	Date	Name	Project revision description
5	24.08.20	MHH	For Approval
4	18.08.20	ZUL	For Approval
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Schneider Electric
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Customer name: ENPPI / EGPC
Project description: 110VDC UPS for Crude Oil Tank Farm Project

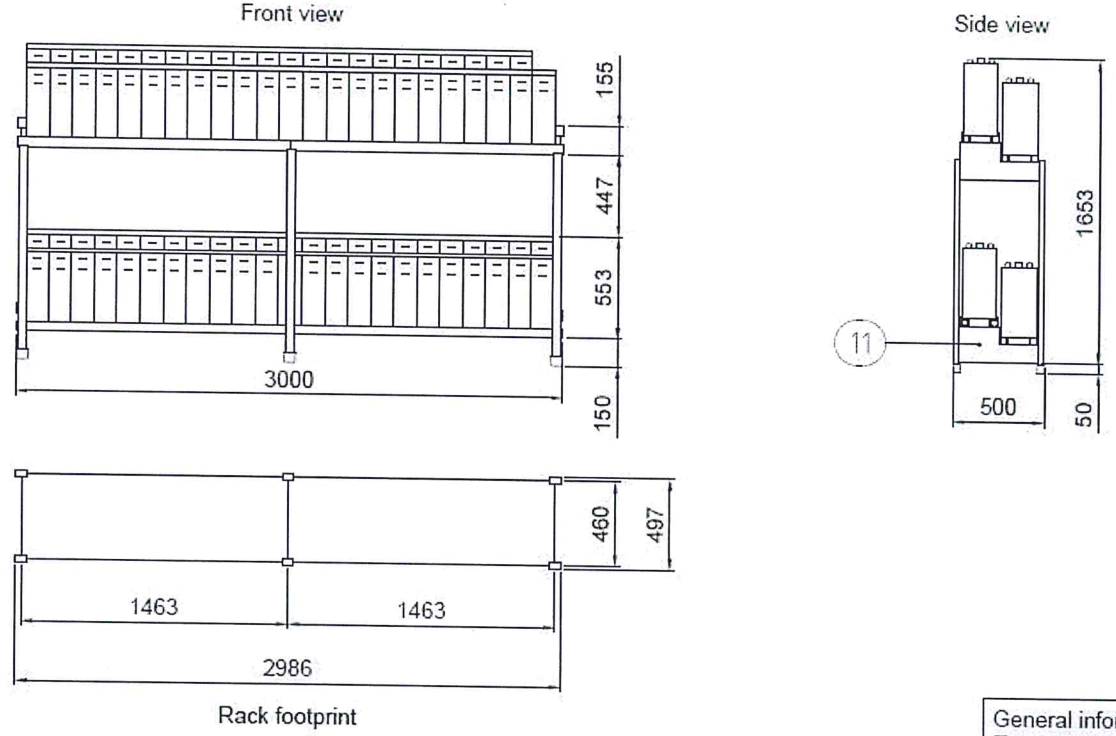
Page description: General arrangement drawing
General arrangement

Document status: For Approval
System type: Gutor SDC 110-160-R

Orig. MHH | Revi. MHH | Appr. WKH | Date
Drawing number: 1200069008/00 &ELU
Page 4/52
Doc. Rev. Status: 5

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No.	Amendment	Date	Sign.
2	+10% electrolyte included.	2020-08-05	PSH



General information
Total system weight: Approx. 1798 kg
Electrolyte per system: Approx. 481 liters (+10%)
Electrolyte per cell: Approx. 4,8L

Battery rack ESGL2-3000
Rack weight: 102.66 kg
Material: Sheet steel S235, powder coated
Supports: RAL 9010
Beams and uprights: RAL 9005

NO.	POS	PART NO.	NAME
1	11	31-03952-16	Battery rack ESGL2-3000

DRAWN: KNL	DATE: 2020-06-17	Ni-Cd Battery
CHECKED: RDG	DATE: 2020-07-17	General Arrangement
APPROVED: MAS	DATE: 2020-08-05	91 cells MC260P
CUSTOMER REF 1: 4500112705		2 tier 2 step rack
CUSTOMER REF 2: 1190123		
ARTICLE GROUP		
REPLACES		DRAWING NUMBER: 93-11531
REPLACED BY		REV: 2

Article Number

MATERIAL

ALCAD

SCALE
FORMAT A3
PAGE 1/2

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4	18.08.20	ZUL	For Approval
3	08.07.20	ZUL	For Approval

Schneider Electric
Gutor technology

Customer name: ENPPI / EGPC
Project description: 110VDC UPS for Crude Oil Tank Farm Project

Page description: General arrangement drawing
Battery layout 1+2

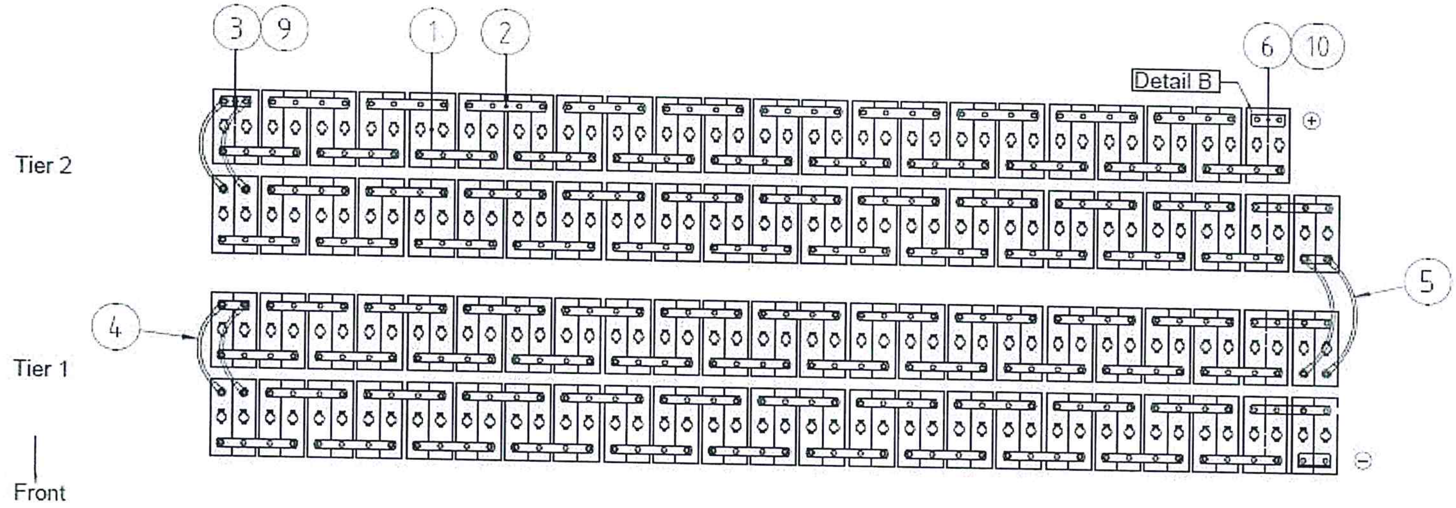
Document status: For Approval
System type: Gutor SDC 110-160-R

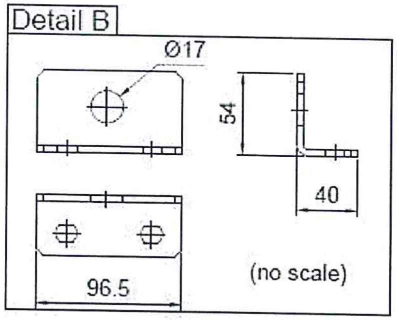
Orig.	ZUL	Revi.	MHH	Appr.	WKH	Date
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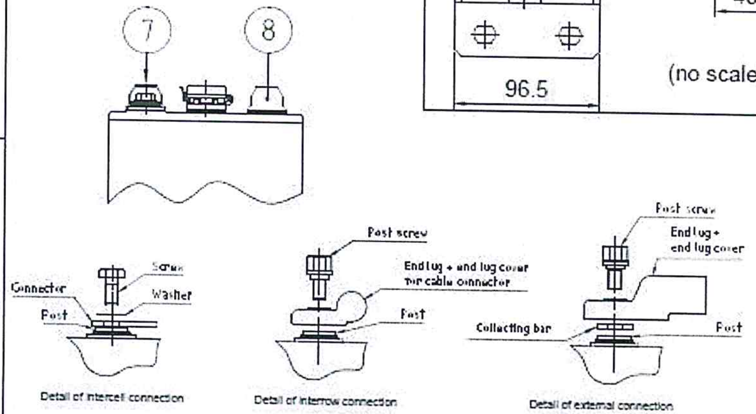
Drawing number: 1200069008/00 &ELU
Page 49/52
Doc. Rev. Status: 5

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No.	Amendment	Date	Sign.
2	+10% electrolyte included.	2020-08-05	PSH







Install external cables in such a way that the weight of the cables does not affect the terminal plate and the battery.

NO.	POS	PART NO.	NAME
4	10	31-10129-02	Terminal plate cover
2	9	31-05747-09	Collecting bar cover (2 pcs)
16	8	31-05339-01	Gable for connector cover
72	7	31-00349-31	Connector cover
4	6	31-10803-04	Terminal plate
2	5	31-05365-29	Cable connector (L=1200 mm)
4	4	31-05365-11	Cable connector (L=350 mm)
3	3	31-00429-18	Collecting bar
87	2	31-00430-18	Connector
91	1	31-10388-51	Cell MC260P

DRAWN KNL	DATE 2020-06-17	Ni-Cd Battery
CHECKED RDG	DATE 2020-07-17	Wiring Arrangement
APPROVED MAS	DATE 2020-08-05	91 cells MC260P
CUSTOMER REF.1 4500112705		2 tier 2 step rack
CUSTOMER REF.2 1190123		
ARTICLE GROUP		
REPLACES		DRAWING NUMBER 93-11531
REPLACED BY		

Article Number

MATERIAL

ALCAD

SCALE 1:30
FORMAT A3
PAGE 2/2
REV 2

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Rev.	Date	Name	Project revision description
5	24.08.20	MHH	For Approval
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Customer name: ENPPI / EGPC
Project description: 110VDC UPS for Crude Oil Tank Farm Project

Page description: General arrangement drawing
Battery layout 1+2

Document status: For Approval
System type: Gutor SDC 110-160-R

Orig. ZUL | Revi. MHH | Appr. WKH | Date

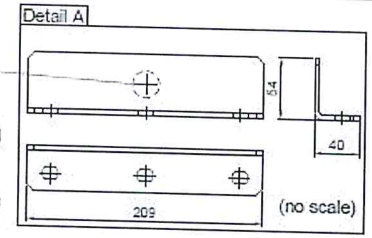
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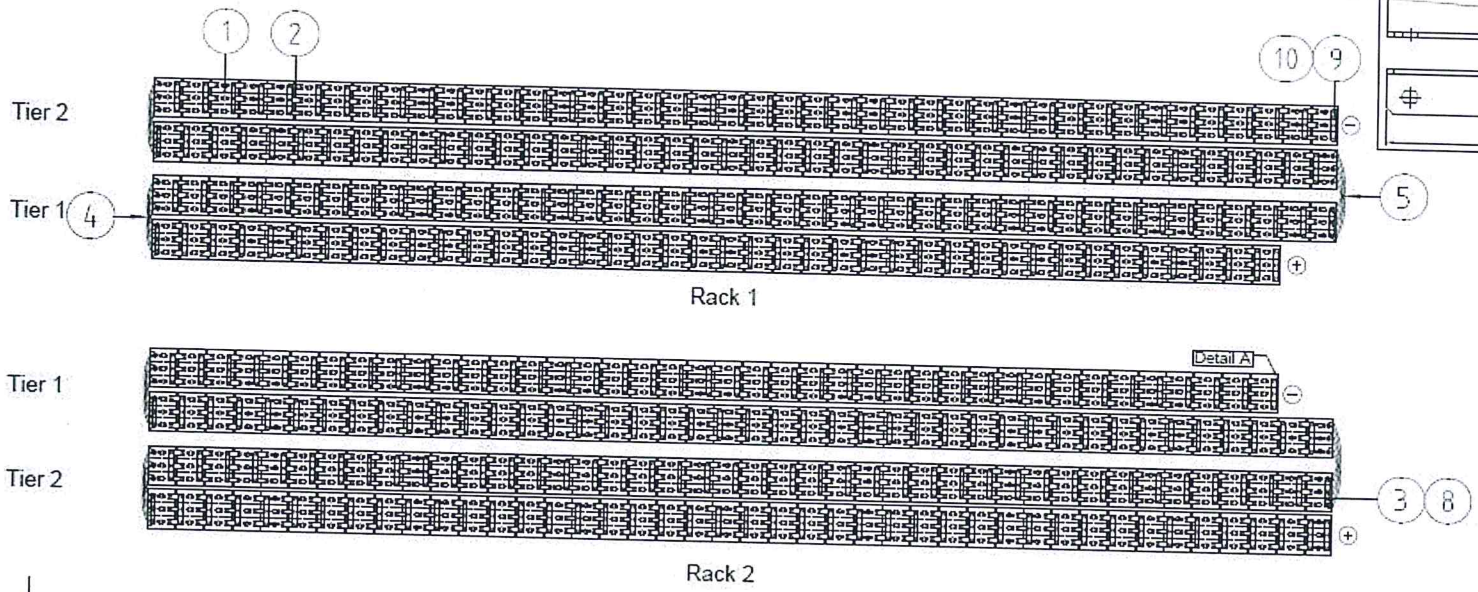
Page 50/52

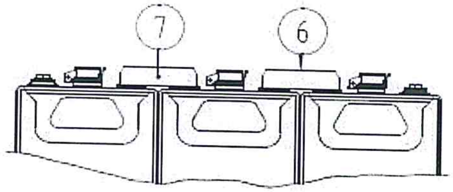
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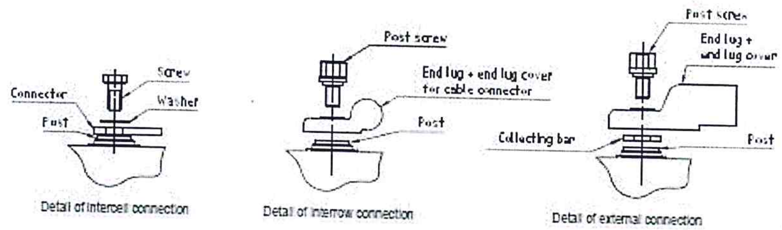
No.	Amendment	Date	Sign.
3	+10% electrolyte included.	2020-08-05	PSH

Hole to be made at installation
Recommended min are end lugs 3x120mm2









NO.	POS	PART NO.	NAME	MATERIAL
4	10	31-10129-10	Terminal plate cover (incl. 3x120 mm² end lugs)	
4	9	31-10821-01	Terminal plate	
3	8	31-05747-41	Collecting bar cover (2 pcs)	
648	7	31-05340-01	Gable for connector cover	
324	6	31-01347-34	Connector cover	
6	5	31-05369-29	Cable connector (L=1200 mm)	
12	4	31-05369-12	Cable connector (L=375 mm)	
330	3	31-00741-02	Collecting bar	
972	2	31-00429-20	Connector	
332	1	31-10362-81	Block MB645P-1	

DRAWN: KNL	DATE: 2020-06-09	2 x Ni-Cd Battery
CHECKED: RDG	DATE: 2020-07-17	General Arrangement
APPROVED: MAS	DATE: 2020-08-05	166 cells MB645P
CUSTOMER REF.1: 4500115982		2 tier 2 step rack
CUSTOMER REF.2: 1200069		
ARTICLE GROUP		
REPLACES		DRAWING NUMBER 90-87171
REPLACED BY		REV 3

Article Number

ALCAD

SCALE 1:40
FORMAT A3
PAGE 1/2

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Page description: General arrangement drawing
Battery layout 1+2

Document status: For Approval
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Orig. ZUL | Revi. MHH | Appr. WKH | Date

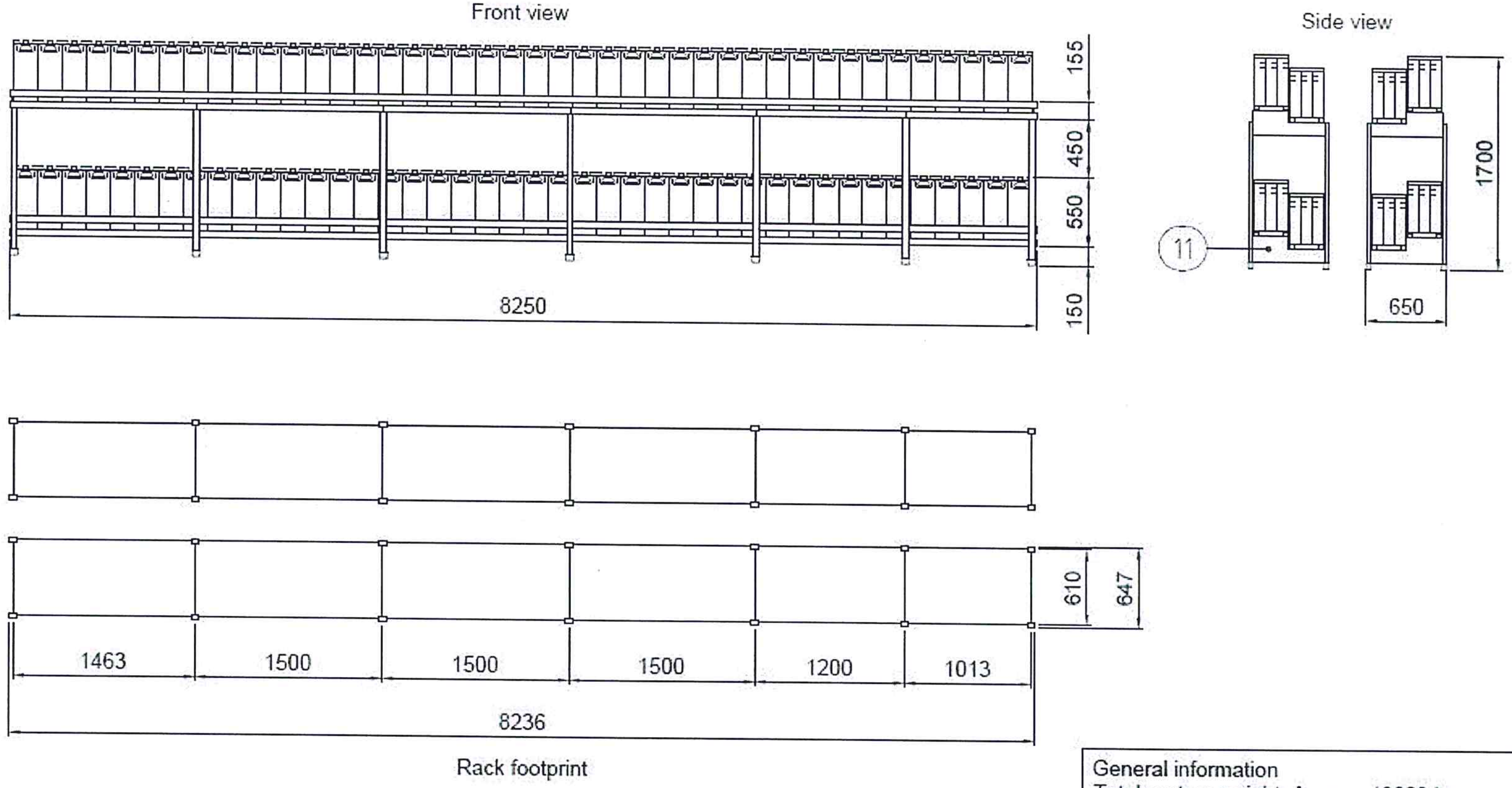
Drawing number: 1200069001/00 &ELU

Page 66/66

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3	+10% electrolyte included.	2020-08-05	PSH



General information
Total system weight: Approx. 13823 kg
Electrolyte per system: Approx. 3469 liters (+10%)
Electrolyte per cell: Approx. 9,5L

Battery rack ESGS2-8250
Rack weight: 289.8 kg
Material: Sheet steel S235, powder coated
Supports: RAL 9010
Beams and uprights: RAL 9005

NO.	POS	PART NO.	NAME	MATERIAL
2	11	31-03957-51	Battery rack ESGS2-8250	

DRAWN KNL DATE 2020-06-09; CHECKED RDG DATE 2020-07-17; APPROVED MAS DATE 2020-08-05
CUSTOMER REF 1: 4500115982; CUSTOMER REF 2: 1200069; ARTICLE GROUP; REPLACES; REPLACED BY; Article Number

2 x Ni-Cd Battery
General Arrangement
166 cells MB645P
2 tier 2 step rack

ALCAD

SCALE; FORMAT A3; PAGE 1/2
DRAWING NUMBER 90-87171; REV 3

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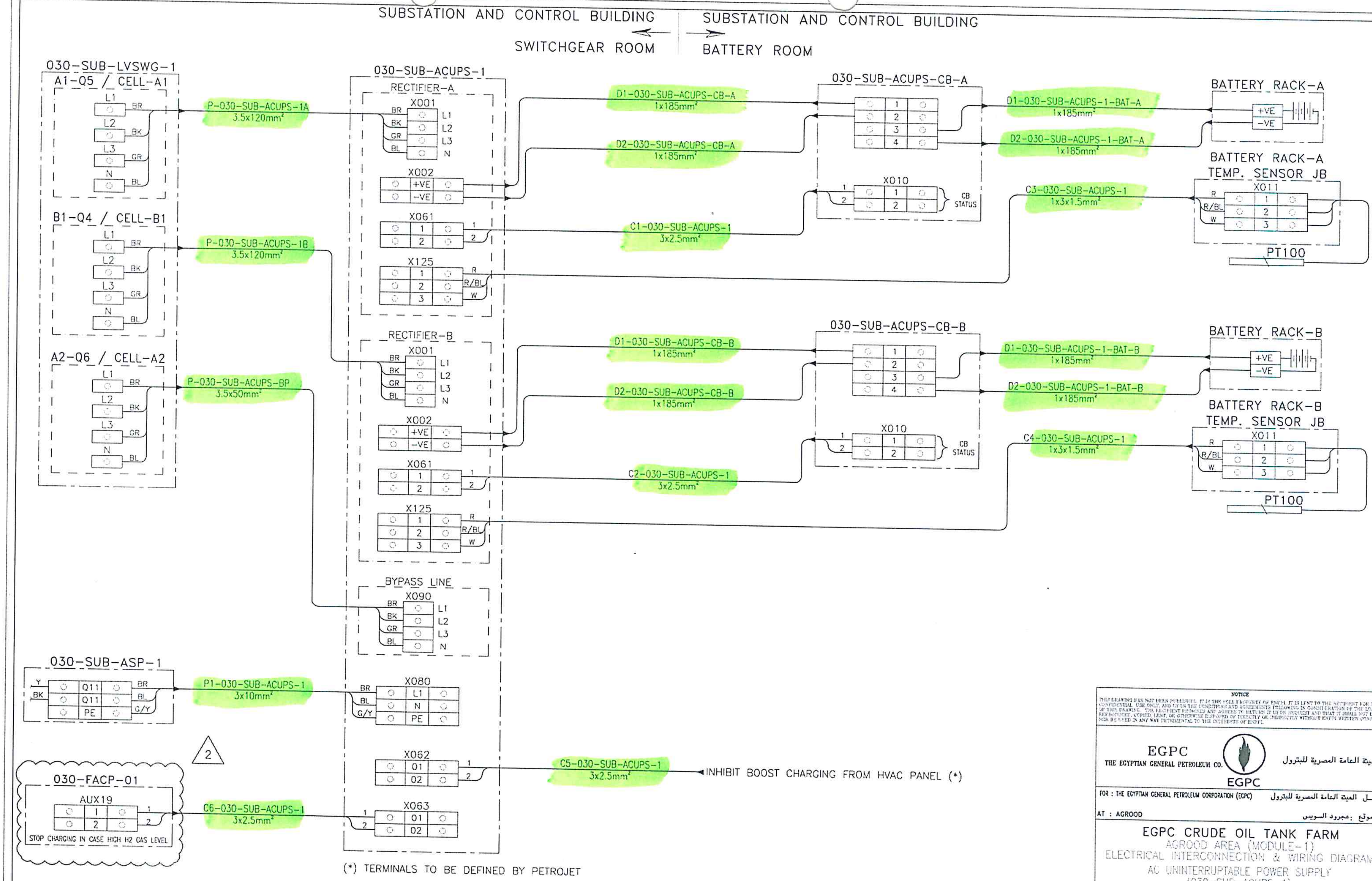
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Battery layout 1+2
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Orig. ZUL Revi. MHH Appr. WKH Date
Drawing number: 1200069001/00 &ELU
Page 65/66
Doc. Rev. Status 5

12.03- Motor Datasheets

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.04- Electrical Cables Schedule

PAGE	Cable Mark	GL1	FROM	TO	GL2	CABLEService	Service Voltage	KW	Size	Type	L
14	P-030-SUB-ACUPS-1A	WP	030-SUB-LVSWG-1 (A1-Q5)	030-SUB-ACUPS-1 (RECTIFIER-A)	WP	3PH POWER FEEDER	400VAC	82	3.5x120	4B	45
14	P-030-SUB-ACUPS-1B	WP	030-SUB-LVSWG-1 (B1-Q4)	030-SUB-ACUPS-1 (RECTIFIER-B)	WP	3PH POWER FEEDER	400VAC	82	3.5x120	4B	45
14	P-030-SUB-ACUPS-BP	WP	030-SUB-LVSWG-1 (A2-Q6)	030-SUB-ACUPS-1 (BY PASS)	WP	3PH POWER FEEDER	400VAC	45	3.5x50	4B	45
14	P1-030-SUB-ACUPS-1	WP	030-SUB-ASP-1 (Q11)	030-SUB-ACUPS-1	WP	1PH POWER FEEDER	230VAC	1	3x10	3E	35
14	D1-030-SUB-ACUPS-CB-A	WP	030-SUB-ACUPS-1-A	030-SUB-ACUPS-CB-A	WP	DC FEEDER	220VDC		1X185		25
14	D2-030-SUB-ACUPS-CB-A	WP	030-SUB-ACUPS-1-A	030-SUB-ACUPS-CB-A	WP	DC FEEDER	220VDC		1X185		25
14	D1-030-SUB-ACUPS-CB-B	WP	030-SUB-ACUPS-1-B	030-SUB-ACUPS-CB-B	WP	DC FEEDER	220VDC		1X185		25
14	D2-030-SUB-ACUPS-CB-B	WP	030-SUB-ACUPS-1-B	030-SUB-ACUPS-CB-B	WP	DC FEEDER	220VDC		1X185		25
14	D1-030-SUB-ACUPS-1-BAT-A	WP	030-SUB-ACUPS-CB-A	030-SUB-ACUPS-1-BATT-A		DC FEEDER	220VDC		1X185		15
14	D2-030-SUB-ACUPS-1-BAT-A	WP	030-SUB-ACUPS-CB-A	030-SUB-ACUPS-1-BATT-A		DC FEEDER	220VDC		1X185		15
14	D1-030-SUB-ACUPS-1-BAT-B	WP	030-SUB-ACUPS-CB-B	030-SUB-ACUPS-1-BATT-B		DC FEEDER	220VDC		1X185		25
14	D2-030-SUB-ACUPS-1-BAT-B	WP	030-SUB-ACUPS-CB-B	030-SUB-ACUPS-1-BATT-B		DC FEEDER	220VDC		1X185		25
14	C1-030-SUB-ACUPS-1	WP	030-SUB-ACUPS-1-A	030-SUB-ACUPS-CB-A	WP	STATUS			3x2.5		20
14	C2-030-SUB-ACUPS-1	WP	030-SUB-ACUPS-1-B	030-SUB-ACUPS-CB-B	WP	STATUS			3x2.5		20
14	C3-030-SUB-ACUPS-1	WP	BATT. RACK-A TEMP.SENSOR	030-SUB-ACUPS-1-A	WP	TEMP. SENSING			1x3x1.5		20
14	C4-030-SUB-ACUPS-1	WP	BATT. RACK-B TEMP.SENSOR	030-SUB-ACUPS-1-B	WP	TEMP. SENSING			1x3x1.5		30
14	C5-030-SUB-ACUPS-1	WP	HVAC MCC	030-SUB-ACUPS-1	WP	FAST CHARGING INHIBIT			3x2.5	C1	80
14	C6-030-SUB-ACUPS-1	WP	FACP	030-SUB-ACUPS-1	WP	CHARGING INHIBIT			3x2.5	C1	45
15	P-030-SUB-DCUPS-1A	WP	030-SUB-LVSWG-1 (A1-Q3)	030-SUB-DCUPS-1 (RECTIFIER-A)	WP	3PH POWER FEEDER	400VAC	18	4x25	4B	50
15	P-030-SUB-DCUPS-1B	WP	030-SUB-LVSWG-1 (B1-Q6)	030-SUB-DCUPS-1 (RECTIFIER-B)	WP	3PH POWER FEEDER	400VAC	18	4x25	4B	50
15	P1-030-SUB-DCUPS-1	WP	030-SUB-ASP-1 (Q12)	030-SUB-DCUPS-1	WP	1PH POWER FEEDER	230VAC	1	3x4	3E	40
15	D1-030-SUB-DCUPS-CB-A	WP	030-SUB-DCUPS-1-A	030-SUB-DCUPS-CB-A	WP	DC FEEDER	110VDC		1X185		20
15	D2-030-SUB-DCUPS-CB-A	WP	030-SUB-DCUPS-1-A	030-SUB-DCUPS-CB-A	WP	DC FEEDER	110VDC		1X185		20
15	D1-030-SUB-DCUPS-CB-B	WP	030-SUB-DCUPS-1-B	030-SUB-DCUPS-CB-B	WP	DC FEEDER	110VDC		1X185		20
15	D2-030-SUB-DCUPS-CB-B	WP	030-SUB-DCUPS-1-B	030-SUB-DCUPS-CB-B	WP	DC FEEDER	110VDC		1X185		20
15	D1-030-SUB-DCUPS-1-BAT-A	WP	030-SUB-DCUPS-CB-A	030-SUB-DCUPS-1-BATT-A		DC FEEDER	110VDC		1X185		15
15	D2-030-SUB-DCUPS-1-BAT-A	WP	030-SUB-DCUPS-CB-A	030-SUB-DCUPS-1-BATT-A		DC FEEDER	110VDC		1X185		15
15	D1-030-SUB-DCUPS-1-BAT-B	WP	030-SUB-DCUPS-CB-B	030-SUB-DCUPS-1-BATT-B		DC FEEDER	110VDC		1X185		20
15	D2-030-SUB-DCUPS-1-BAT-B	WP	030-SUB-DCUPS-CB-B	030-SUB-DCUPS-1-BATT-B		DC FEEDER	110VDC		1X185		20
15	C1-030-SUB-DCUPS-1	WP	030-SUB-DCUPS-1-A	030-SUB-DCUPS-CB-A	WP	STATUS			3x2.5		20
15	C2-030-SUB-DCUPS-1	WP	030-SUB-DCUPS-1-B	030-SUB-DCUPS-CB-B	WP	STATUS			3x2.5		20
15	C3-030-SUB-DCUPS-1	WP	BATT. RACK-A TEMP.SENSOR	030-SUB-DCUPS-1-A	WP	TEMP. SENSING			1x3x1.5		20
15	C4-030-SUB-DCUPS-1	WP	BATT. RACK-B TEMP.SENSOR	030-SUB-DCUPS-1-B	WP	TEMP. SENSING			1x3x1.5		20
15	C5-030-SUB-DCUPS-1	WP	HVAC MCC	030-SUB-DCUPS-1	WP	FAST CHARGING INHIBIT			3x2.5	C1	85
15	C6-030-SUB-DCUPS-1	WP	FACP	030-SUB-DCUPS-1	WP	CHARGING INHIBIT			3x2.5	C1	50



NOTICE
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EGPC
THE EGYPTIAN GENERAL PETROLEUM CO.
الهيئة العامة المصرية للبترول
EGPC

FOR : THE EGYPTIAN GENERAL PETROLEUM CORPORATION (EGPC) لاجل الهيئة العامة المصرية للبترول

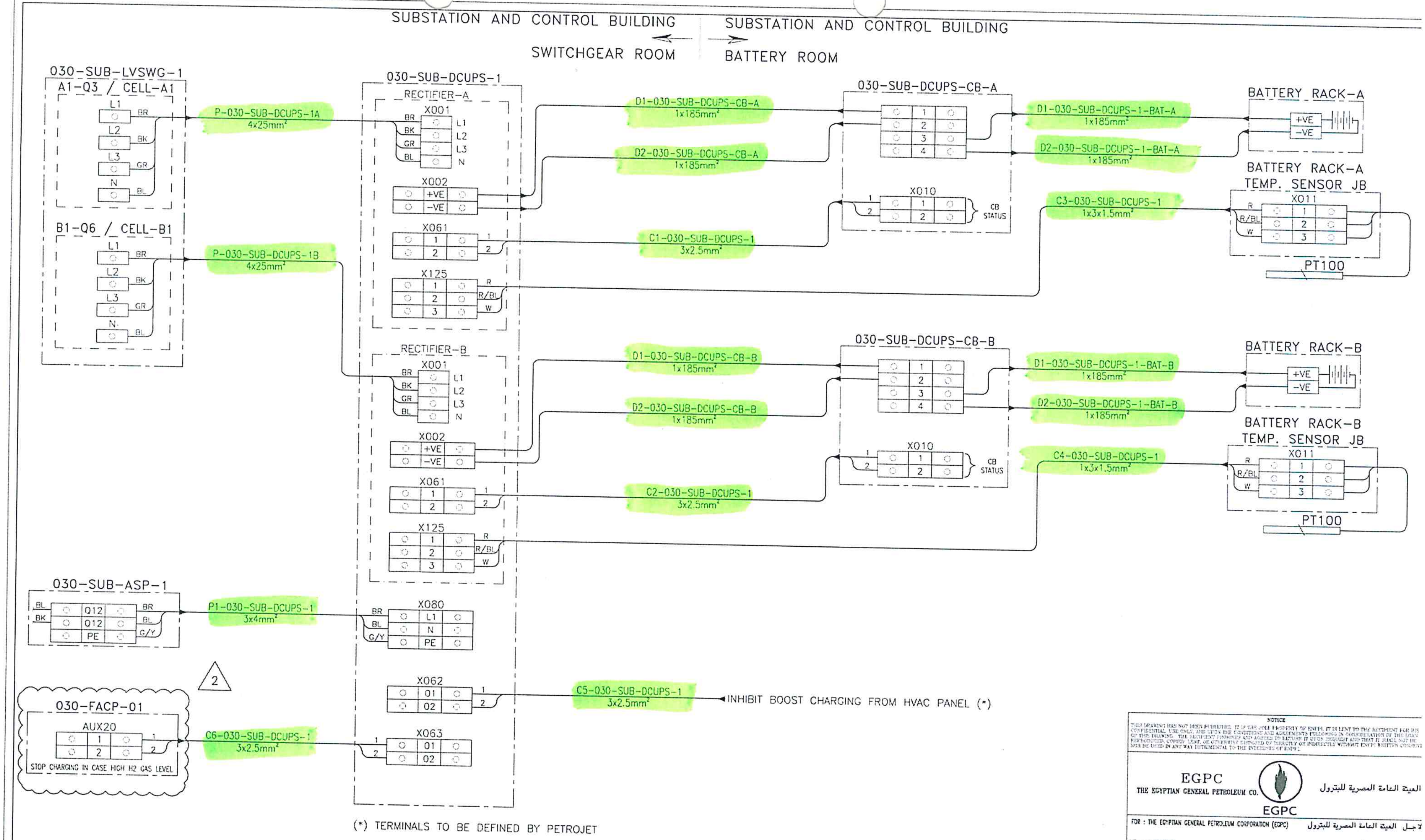
AT : AGROOD الموقع: عجرود السويس

EGPC CRUDE OIL TANK FARM
AGROOD AREA (MODULE-1)
ELECTRICAL INTERCONNECTION & WIRING DIAGRAM
AC UNINTERRUPTABLE POWER SUPPLY
(030-SUB-ACUPS-1)

الشركة الهندسية للصناعات البترولية والكيماوية
Enppi إنبي
ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

SCALE	DOCUMENT NUMBER	SHEET	REVISION
NONE	01251-100-030-EWI-001	016 OF 078	2

A3 SIZE: 297 X 420

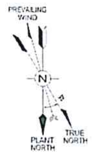


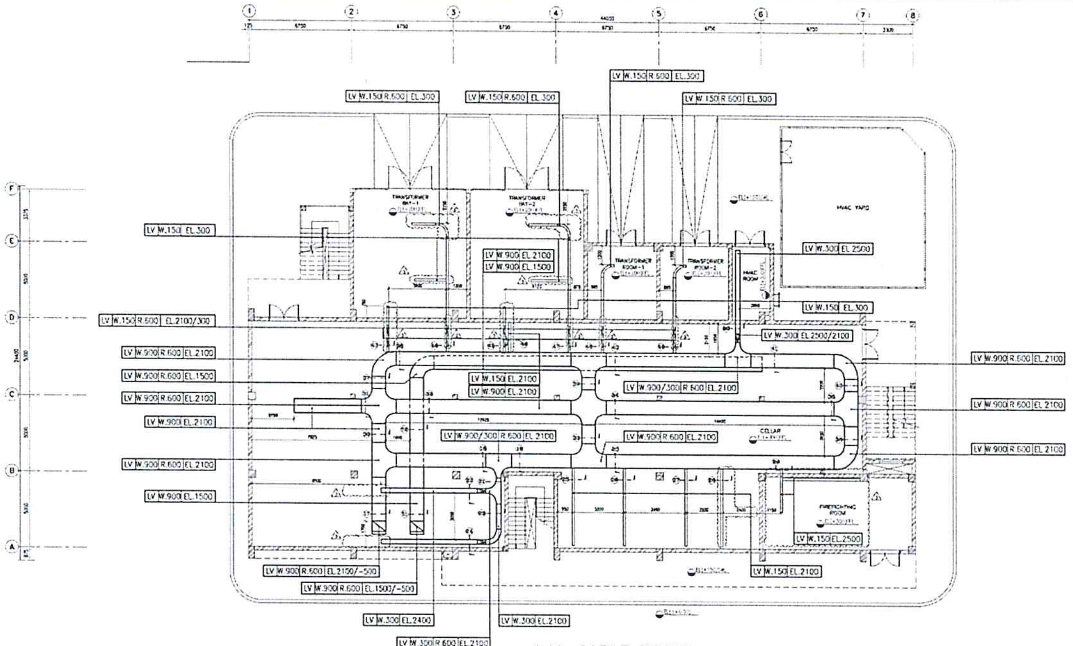
EGPC THE EGYPTIAN GENERAL PETROLEUM CO.		EGPC	الهيئة العامة المصرية للبترول
FOR : THE EGYPTIAN GENERAL PETROLEUM CORPORATION (EGPC)			لأجل: الهيئة العامة المصرية للبترول
AT : AGROOD			الموقع: عجرود السويس
EGPC CRUDE OIL TANK FARM AGROOD AREA (MODULE-1) ELECTRICAL INTERCONNECTION & WIRING DIAGRAM DC UNINTERRUPTABLE POWER SUPPLY (030-SUB-DCUPS-1)			
الشركة الهندسية للصناعات البترولية والكيماوية Enppi إنبي ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES			
SCALE	DOCUMENT NUMBER	SHEET	REVISION
NONE	01251-100-030-EWI-001	017 OF 078	2

A3 SIZE: 297 X 420

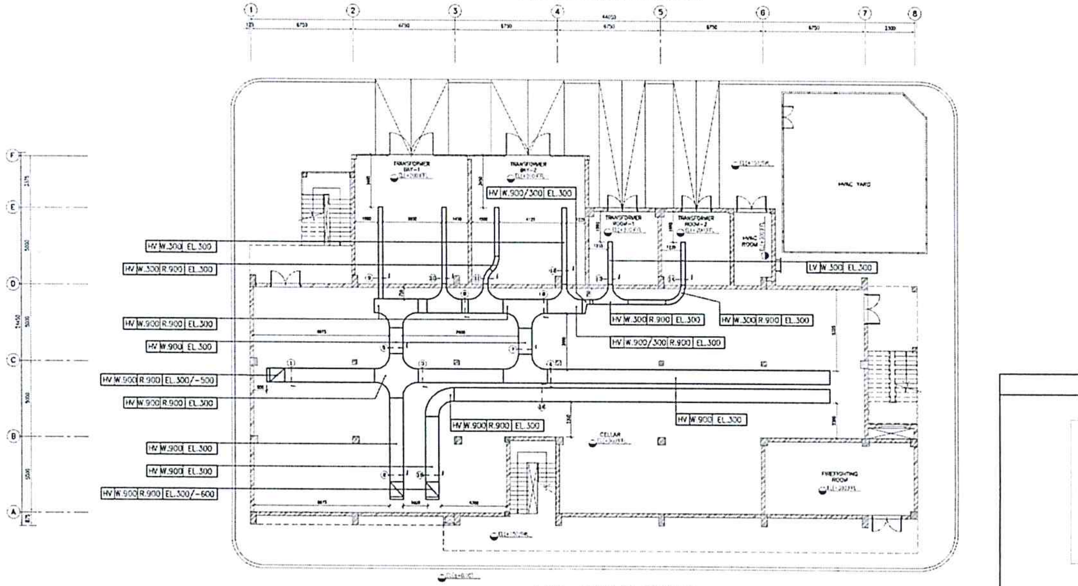
System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.05- Electrical Cables Laying Certificates



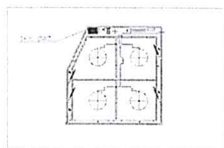


L.V. CABLE TRAYS



H.V. CABLE TRAYS

KEY PLAN



SCALE = 1 : 150

REFERENCE DRAWINGS AND DOCUMENTS

01251-100-030-CBD-221	SUBSTATION & CONTROL ROOM CELLAR FLOOR PLAN
01251-100-030-CBD-202	SUBSTATION & CONTROL ROOM FOUNDATION PLAN & DETAILS
01251-100-030-EEB-001	SUBSTATION ELECTRICAL EQUIPMENT LAYOUT
01251-100-030-EES-003	OUTDOOR ELECTRICAL CABLE SECTIONS
01251-100-030-EES-004	SUBSTATION ELECTRICAL CABLE SECTIONS
01251-100-030-ECL-001	OUTDOOR ELECTRICAL CABLE ROUTING LAYOUT
01251-100-030-ECS-001	AGROOD AREA (MODULE-1) ELECTRICAL CABLE SCHEDULE
01251-100-000-EDB-001	ELECTRICAL DESIGN BASIS

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE INDICATED.
2. FOR BOTTOM-ENTRY SUBSTATIONS (HAVING TWO FLOORS), CABLES SHOULD ENTER SWITCHGEAR ROOM VIA THE FOLLOWING MEANS:
   - VERMIN PROOF GLAND PLATES, WHICH ARE BOTTOM PARTS OF SWITCHGEARS AND PANELS.
   - SEALING EXTENSION CABLE BOXES (WHICH SHALL BE INSTALLED INSIDE CELLAR FLOOR, AND JUST UNDER SWITCHGEAR OR PANEL), IN CASE THAT AREA REQUIRED TO ACCOMMODATE CABLES GLANDS HOLES ARE EXCEEDING DIMENSIONS OF THE GLAND PLATES.
3. PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE SEALED IN SUCH A WAY THAT THE ORIGINAL FIRE RATING IS RESTORED. AN APPROVED FIRE RATED MORTAR SHALL BE USED. THE SECTION OF CABLES INSIDE THE AREA TO BE SEALED SHALL BE CAREFULLY CLEANED.
4. CABLES SHALL BE IDENTIFIED WITH STAINLESS STEEL MARKERS ATTACHED TO EACH CABLE AND STAMPED WITH THE CABLE TAG AT THE FOLLOWING LOCATIONS:
   - 4.1 WITH MAXIMUM INTERVALS OF 30 METERS FOR ABOVEGROUND CABLES.
   - 4.2 WHERE CABLES CHANGES THEIR DIRECTIONS.
   - 4.3 AT BOTH CABLE ENDS.
5. ALL CABLES IN TRAYS SHALL BE GROUPED ACCORDING TO VOLTAGE, INSULATION CLASS AND FUNCTION AS FOLLOWING:
   - 5.1 HIGH VOLTAGE CABLES SHALL RUN IN SEPARATE CABLE TRAYS.
   - 5.2 CONTROL CABLES AND LOW VOLTAGE CABLES MAY RUN IN THE SAME CABLE TRAY.
   - 5.3 LIGHTING CABLES AND LOW VOLTAGE CABLES MAY RUN IN THE SAME CABLE TRAY.
6. MAXIMUM ALLOWABLE FILL AREA ELECTRICAL CABLES INSTALLED IN CABLE TRAYS SHALL BE 80%.
7. CABLES INSTALLED ON TRAYS SHALL BE LAID NEATLY IN PARALLEL RUNS WITH NO CROSSING OVER OF CABLES, EXCEPT AS APPROVED BY CLIENT.
8. MULTI-CORE CABLES SHALL BE FIXED WITH HEAVY DUTY NYLON CABLE-TIES TO RUNGS OF CABLE TRAYS WITH MAXIMUM SPACING 1000MM FOR HORIZONTAL RUN, AND 500MM FOR VERTICAL RUN.
9. CABLE TRAYS SHALL BE INSTALLED AS A COMPLETE SYSTEM. CABLE TRAY SYSTEM SHALL NOT HAVE MECHANICALLY DISCONTINUOUS SEGMENTS OF CABLE TRAY RUNS.
10. ARMORED CABLES MAY BE EXTENDED FROM CABLE TRAYS TO EQUIPMENT.
11. CABLE TRAYS RUN IN INDOOR AREAS SHALL NOT HAVE COVERS.
12. MINIMUM VERTICAL CLEARANCE BETWEEN CABLE TRAYS SHALL BE 400MM.
13. MINIMUM CROSSING DISTANCE BETWEEN CABLE TRAYS SHALL BE 150MM.
14. CONSTRUCTION CONTRACTOR RESPONSIBILITY SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
    - 14.1. CABLES CUTTING SHALL BE CARRIED OUT PREFERABLY AFTER ACCURATE POSITIONING. IN ANY OTHER CASE THE CUTTING LENGTH SHALL BE DETERMINED BY ACCURATE ROUTE MEASURE BEFORE CUTTING.
    - 14.2. PULLING STRESSES PERMITTED DURING INSTALLATION AND OPERATION SHALL BE IN ACCORDANCE WITH THOSE ESTABLISHED BY CABLES MANUFACTURER.
    - 14.3. ALL CABLE BENDS SHALL BE SO MADE THAT THE CABLE WILL NOT BE DAMAGED. THE MINIMUM RADIUS OF THE INSIDE OF THE BEND SHALL NOT BE LESS THAN TWELVE TIMES THE OVERALL CABLE DIAMETER AND NOT LESS THAN THAT RECOMMENDED BY THE CABLE MANUFACTURER.
    - 14.4. CONSTRUCTION CONTRACTOR SHALL PROVIDE MARK-UP DRAWING FOR CABLE ROUTING LAYOUTS.
    - 14.5. THE FOLLOWING ELECTRICAL CONSUMABLE MATERIALS SHALL BE IN CONSTRUCTION CONTRACTOR SCOPE OF SUPPLY:
      - 14.5.1. STAINLESS STEEL CABLE MARKERS
      - 14.5.2. WIRES MARKERS
      - 14.5.3. CABLES TIES.
      - 14.5.4. PIN/FORK/RING TERMINALS FOR CONTROL CABLES
      - 14.5.5. STAINLESS STEEL BOLTS/U-BOLTS/WASHERS/NUTS
      - 14.5.6. HDG STEEL SUPPORTS & THREADED RODS FOR FIXATION OF CABLE TRAYS.
      - 14.5.7. HDG CLAMPS FOR STEEL CONDUITS.
      - 14.5.8. CABLE CLAMPS.
      - 14.5.9. FIRE RATED FOAM FOR SEALING SUBSTATION/BATTERY ROOM OPENINGS.
15. ALL CABLE SECTIONS NUMBERS ARE CHANGED.

IDENTIFICATION

- FOR IDENTIFICATION SEE DRAWING NO. 01251-100-030-ECB-001 SHEET NO. 1 OF 2.

REV	DATE	DESCRIPTION	BY	CHECKED	DESIGNED	APPROVED
3	25/08/20	RE-ISSUED FOR CONSTRUCTION	R.M	SH.A	M.R	M.A
2	08/03/20	ISSUED FOR CONSTRUCTION	A.S.M	SH.A	A.S.M	M.A
1	19/11/19	RE-ISSUED FOR DESIGN	A.S.M	SH.A/M.A	A.S.M	H.A
0	07/10/19	ISSUED FOR DESIGN	A.S.M	SH.A/M.A	A.S.M	H.A

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EGPC
THE EGYPTIAN GENERAL PETROLEUM CO.
الهيئة العامة المصرية للبترول

FOR : THE EGYPTIAN GENERAL PETROLEUM CORPORATION (EGPC) — لاجل الهيئة العامة المصرية للبترول

AT : AGROOD — الموقع : عجرود

EGPC CRUDE OIL TANK FARM
AGROOD AREA (MODULE-1)
SUBSTATION ELECTRICAL CABLE ROUTING LAYOUT

المركز الهندسي للصناعات البترولية والكيماوية
Enppi إنبي
ENGINEERING FOR THE PETROLEUM AND PROCESS INDUSTRIES

SCALE	ENPPI DRAWING NUMBER	SHEET	REVISION
1:150	01251-100-030-ECB-001	2 OF 2	3

A1(841.00MMx594.00MM)

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.06- Electrical Cables Testing Certificates

	EGPC CRUDE OIL TANK FARM	

INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:				
INSPECTION REPORT NUMBER PTJ-ELE-RFI-	INSPECTION DATE & TIME	DOUCUMENT No ITR-EL-0006A	DISPLINE ELECTRICAL	SHEET NO
INSTRUMENT TYPE: HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000	SERIAL: 17015900385	SERVICE VOLTAGE: 400	TEST VOLTAGE: 1000	AREA / PACKAGE: SUBSTATION

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE			PHASE TO NUETRAL"M.Ohm"			PHASES & NUETRAL TO ARMOR "M.Ohm"				RESULT	
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	B-ARM	Pass	FAIL
17	P-030-SUB-LPDP-1	3.5x120	✓	oL	oL	oL	oL							✓	
18	P-030-SUB-ASP-1	3.5x120	✓	oL	oL	oL	oL							✓	
19	P-030-EPM1-UPDP-1	3.5x50	✓	oL	oL	oL	oL							✓	
20	P1-030-SUB-ACUPS-1	3x10	✓	o			oL							✓	
21	P-030-SUB-IRP-1	3x10	✓				oL							✓	
22	D-030-SUB-LVSWG-1A	3x10	✓				oL							✓	
23	D-030-SUB-LVSWG-1B	3x10	✓				oL							✓	
24	D-030-SUB-IRP-1	3x10	✓				oL							✓	
25	P1-030-SUB-LVSWG-1A	3x10	✓				oL							✓	
26	P1-030-SUB-LVSWG-1B	3x10	✓				oL							✓	
27	C1-030-SUB-ACUPS-1	3x2.5	✓				oL							✓	
28	C2-030-SUB-ACUPS-1	3x2.5	✓				oL							✓	
29	C1-030-SUB-DCUPS-1	3x2.5	✓				oL							✓	
30	C2-030-SUB-DCUPS-1	3x2.5	✓				oL							✓	
31	P-030-SUB-AVR-1A	3x4	✓				oL							✓	
32	P-030-SUB-AVR-1B	3x4	✓				oL							✓	

Remarks :-

Referance :-

	PETROJET	ENPPI	PMC

Enppi	EGPC CRUDE OIL TANK FARM	EGPC

INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	DOUCUMENT No.	DISPLINE	SHEET NO
PTJ-ELE-RFI-		ITR-EL-0006A	ELECTRICAL	

INSTRUMENT TYPE: HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000	SERIAL: 17015900385	SERVICE VOLTAGE: 400	TEST VOLTAGE: 1000	AREA / PACKAGE: SUBSTATION

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE			PHASE TO NUETRAL"M.Ohm"			PHASES & NUETRAL TO ARMOR "M.Ohm"				RESULT	
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	B-ARM	Pass	FAIL
33	P1-030-SUB-DCUPS-1	3x4	✓				OL							✓	
34	P-030-SUB-UPDP-1	4x25	✓	OL	OL	OL	OL							✓	
35	P-030-SUB-DCUPS-1A	4x25	✓	OL	OL	OL	OL							✓	
36	P-030-SUB-DCUPS-1B	4x25	✓	OL	OL	OL	OL							✓	
37															
38															
39															
40															
41															
42															
43															
44															
45															
46															
47															
48															

Remarks :-

Referance :-

	PETROJET	ENPPI	PMC

Enppi	EGPC CRUDE OIL TANK FARM	EGPC

INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

SYSTEM NO.:

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	DOUCUMENT No.	DISPLINE	SHEET NO
PTJ-ELE-RFI-	10/04/2021	ITR-EL-0006B	ELEC	

INSTRUMENT TYPE:	SERIAL:	SERVICE VOLTAGE:	TEST VOLTAGE:	AREA / PACKAGE:
HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000	17015900385	24	500	

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	pair conductors	conductors to armor	Shield to Shield	All Conductors-GND	Overall Shield -GND	Armor -GND	RESULT Pass	RESULT FAIL
1	C7-030-SUB-HVSWG-	10x2.5	✓	500 ✓				>500 MΩ		✓	
2	C7-030-SUB-HVSWG-	10x2.5	✓	500 ✓				>500 MΩ		✓	
3	C1-030-SUB-PFC-1A	3x2.5	✓	500 ✓				>500 MΩ		✓	
4	C2-030-SUB-PFC-1A	12x2.5	✓	500 ✓				>500 MΩ		✓	
5	C1-030-SUB-PFC-1B	3x2.5	✓	500 ✓				>500 MΩ		✓	
6	C2-030-SUB-PFC-1B	12x2.5	✓	500 ✓				>500 MΩ		✓	
7	C3-030-SUB-LVSWG-1A	10x2.5	✓	500 ✓				>500 MΩ		✓	
8	C3-030-SUB-LVSWG-1B	10x2.5	✓	500 ✓				>500 MΩ		✓	
9	C3-030-SUB-ACUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
10	C4-030-SUB-ACUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
11	C3-030-SUB-DCUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	
12	C4-030-SUB-DCUPS-1	1x3x1.5	✓	500 ✓				>500 MΩ		✓	

Remarks :-

Referance

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER: PTJ-ELE-RFI-	INSPECTION DATE & TIME	DOUCUMENT No. ITR-EL-0006A	DISPLINE: ELECTRICAL	SYSTEM NO.: / SHEET NO
INSTRUMENT TYPE: HIGH VOLTAGE INSULATION TESTER-SANWA-MG5000	SERIAL: 17015900385	SERVICE VOLTAGE: 400	TEST VOLTAGE: 1000	AREA / PACKAGE: SUBSTATION

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE			PHASE TO NUETRAL"M.Ohm"			PHASES & NUETRAL TO ARMOR "M.Ohm"				RESULT	
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	B-ARM	Pass	FAIL
1	D1-030-SUB-ACUPS-CB-A	1X185	✓											✓	
2	D2-030-SUB-ACUPS-CB-A	1X185	✓											✓	
3	D1-030-SUB-ACUPS-CB-B	1X185	✓											✓	
4	D2-030-SUB-ACUPS-CB-B	1X185	✓											✓	
5	D1-030-SUB-ACUPS-1-BAT-A	1X185	✓											✓	
6	D2-030-SUB-ACUPS-1-BAT-A	1X185	✓											✓	
7	D1-030-SUB-ACUPS-1-BAT-B	1X185	✓											✓	
8	D2-030-SUB-ACUPS-1-BAT-B	1X185	✓											✓	
9	D1-030-SUB-DCUPS-CB-A	1X185	✓											✓	
10	D2-030-SUB-DCUPS-CB-A	1X185	✓											✓	
11	D1-030-SUB-DCUPS-CB-B	1X185	✓											✓	
12	D2-030-SUB-DCUPS-CB-B	1X185	✓											✓	
13	D1-030-SUB-DCUPS-1-BAT-A	1X185	✓											✓	
14	D2-030-SUB-DCUPS-1-BAT-A	1X185	✓											✓	
15	D1-030-SUB-DCUPS-1-BAT-B	1X185	✓											✓	
16	D2-030-SUB-DCUPS-1-BAT-B	1X185	✓											✓	

Remarks :-

Referance :-

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi | EGPC CRUDE OIL TANK FARM | EGPC

INSPECTION AND TEST REPORT FOR

CABLE INSULATION RESISTANCE TEST

INSPECTION REPORT NUMBER RFI- 262	INSPECTION DATE & TIME	DOUCUMENT No. ITR-EL-0006A	DISPLINE ELECTRICAL	SYSTEM NO.: / SHEET NO
INSTRUMENT TYPE:	SERIAL:	SERVICE VOLTAGE: 220 v	TEST VOLTAGE: 1kv	AREA / PACKAGE:

NO	Item/Tag NO.	CABLE SIZE	Continuity Test	PHASE TO PHASE "M.Ohm"			PHASE TO NUETRAL"M.Ohm"			PHASES & NUETRAL TO ARMOR "M.Ohm"				RESULT	
				BR-BK	BR-GR	BK-GR	BR-B	BK-B	GR-B	BR-ARM	BK-ARM	GR-ARM	B-ARM	Pass	FAIL
1	P-030-SUB-ACUPS-1A	3.5x120	✓											✓	
2	P-030-SUB-ACUPS-1B	3.5x120	✓											✓	
3	P-030-SUB-ACUPS-BP	3.5x50	✓											✓	
4	C-030-SUB-PC-1	3x2.5	✓					OK						✓	
5	P-030-Tol-CPTR	3x10	✓											✓	
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															

Remarks :-

Referance :-

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	Islam Sherif [signature]	[signature]
DATE			

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.07- Electrical Cables Termination Certificates

Enppi | EGPC CRUDE OIL TANK FARM | EGPC

Owner : Egyptian General Petroleum Corporation (EGPC) — Project No: 01251-100-030 :01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET) — Document No: ITR-QC-0001, Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- 169 DISCIPLINE : ELEC

DATE : 10/04/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
1	P1-030-SUB-HVSWG-6.6A	SUBSTATION					
2	P1-030-SUB-HVSWG-6.6B	SUBSTATION					
3	D-030-SUB-HVSWG-6.6A	SUBSTATION					
4	D-030-SUB-HVSWG-6.6B	SUBSTATION					
5	C7-030-SUB-HVSWG-6.6A	SUBSTATION					
6	C7-030-SUB-HVSWG-6.6B	SUBSTATION					
7	P1-030-SUB-PFC-1A	SUBSTATION					
8	D-030-SUB-PFC-1A	SUBSTATION					
9	C1-030-SUB-PFC-1A	SUBSTATION					
10	C2-030-SUB-PFC-1A	SUBSTATION					
11	P1-030-SUB-PFC-1B	SUBSTATION					
12	D-030-SUB-PFC-1B	SUBSTATION					
13	C1-030-SUB-PFC-1B	SUBSTATION					
14	C2-030-SUB-PFC-1B	SUBSTATION					
15	C3-030-SUB-LVSWG-1A	SUBSTATION					
16	C3-030-SUB-LVSWG-1B	SUBSTATION					
17	C3-030-SUB-ACUPS-1	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi	EGPC CRUDE OIL TANK FARM	EGPC

Owner :	Egyptian General Petroleum Corporation (EGPC)	Project No: 01251-100-030 :01251-100-031
Contractor	CONSORTIUM (ENPPI / PETROJET)	Document No: ITR-QC-0001 Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI-169 DISCIPLINE : ELEC

DATE : 10/04/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
18	C4-030-SUB-ACUPS-1	SUBSTATION					
19	C3-030-SUB-DCUPS-1	SUBSTATION					
20	C4-030-SUB-DCUPS-1	SUBSTATION					
21	P1-030-PLC-SC-001	SUBSTATION					
22	P2-030-PLC-SC-001	SUBSTATION					
23	P1-030-PLC-SC-002	SUBSTATION					
24	P2-030-PLC-SC-002	SUBSTATION					
25	P1-030-PLC-SC-003	SUBSTATION					
26	P2-030-PLC-SC-003	SUBSTATION					
27	P1-030-PLC-SC-004	SUBSTATION					
28	P2-030-PLC-SC-004	SUBSTATION					
29	P1- 030-FGS-SC-001	SUBSTATION					
30	P2- 030-FGS-SC-001	SUBSTATION					
31	P1-030-TGS -001	SUBSTATION					
32	P2-030-TGS-001	SUBSTATION					
33	P3-030-PLC-SC-001	SUBSTATION					
34	P3-030-PLC-SC-002	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	[signature]	[signature]
DATE			

ITR-QC-0001

Enppi PETROJET	EGPC CRUDE OIL TANK FARM	EGPC

INSPECTION AND TEST REPORT FOR

CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	ITR NUMBER	DISPLINE	SHEET NO
PTJ-ELE-RFI-	10/04/2021	ITR-EL-0009	ELEC	1 OF 1

Item/Tag NO.	For All Cables tages in PTJ-ELE-RFI-				
Type :-		Core:		Size:	

NO.	Description of check	RESUNT		
		ACCEPT	REJECT	N/A.
1	Check cable glands are correct type and size as per cable schedule.	✓		
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.	✓		
3	Check cable tag is done correctly.	✓		
4	Test and confirm conductor, phase continuity.	✓		
5	Check insulation resistance test (megger) is completed *'	✓		
6	Check Hi-pot test is completed, only for MV/HV cables *''			✓
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓		
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications			✓
9	Check enclosure cover is installed , no damages and no bolts are missing	✓		
10	Calibration test certificate of testing equipment to be checked.	✓		

Remarks :

*' : ITR-EL-006A/B

*'' :ITR-EL-008

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi	EGPC CRUDE OIL TANK FARM	EGPC
Owner :	Egyptian General Petroleum Corporation (EGPC)	Project No: 01251-100-030 :01251-100-031
Contractor	CONSORTIUM (ENPPI / PETROJET)	Document No: ITR-QC-0001 Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI-160 DISCIPLINE : ELEC

DATE : 27/03/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
1	C2-030-MXM-01A	SUBSTATION					
2	C2-030-MXM-01B	SUBSTATION					
3	C2-030-MXM-01C	SUBSTATION					
4	C2-030-MXM-01D	SUBSTATION					
5	C2-030-MXM-01E	SUBSTATION					
6	C2-030-MXM-01F	SUBSTATION					
7	C2-030-PM-04A	SUBSTATION					
8	C2-030-PM-05A	SUBSTATION					
9	C2-030-PM-03A	SUBSTATION					
10	C2-030-PM-04B	SUBSTATION					
11	C2-030-PM-05B	SUBSTATION					
12	C2-030-PM-03B	SUBSTATION					
13	D1-030-SUB-ACUPS-CB-A	SUBSTATION					
14	D2-030-SUB-ACUPS-CB-A	SUBSTATION					
15	D1-030-SUB-ACUPS-CB-B	SUBSTATION					
16	D2-030-SUB-ACUPS-CB-B	SUBSTATION					
17	D1-030-SUB-ACUPS-1-BAT-A	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

Enppi	EGPC CRUDE OIL TANK FARM	EGPC
Owner :	Egyptian General Petroleum Corporation (EGPC)	Project No: 01251-100-030 :01251-100-031
Contractor	CONSORTIUM (ENPPI / PETROJET)	Document No: ITR-QC-0001 Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- DISCIPLINE : ELEC

DATE : 27/03/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
18	D2-030-SUB-ACUPS-1-BAT-A	SUBSTATION					
19	D1-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
20	D2-030-SUB-ACUPS-1-BAT-B	SUBSTATION					
21	D1-030-SUB-DCUPS-CB-A	SUBSTATION					
22	D2-030-SUB-DCUPS-CB-A	SUBSTATION					
23	D1-030-SUB-DCUPS-CB-B	SUBSTATION					
24	D2-030-SUB-DCUPS-CB-B	SUBSTATION					
25	D1-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
26	D2-030-SUB-DCUPS-1-BAT-A	SUBSTATION					
27	D1-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
28	D2-030-SUB-DCUPS-1-BAT-B	SUBSTATION					
29	P-030-SUB-LPDP-1	SUBSTATION					
30	P-030-SUB-ASP-1	SUBSTATION					
31	P-030-EPM1-UPDP-1	SUBSTATION					
32	P1-030-SUB-ACUPS-1	SUBSTATION					
33	P-030-SUB-IRP-1	SUBSTATION					
34	D-030-SUB-LVSWG-1A	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

ITR-QC-0001

Enppi | EGPC CRUDE OIL TANK FARM | EGPC

Owner : Egyptian General Petroleum Corporation (EGPC) — Project No: 01251-100-030 :01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET) — Document No: ITR-QC-0001 Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND TEST

NOTIFICATION NO. : PTJ-ELE-RFI- DISCIPLINE : ELEC

DATE : 27/03/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
35	D-030-SUB-LVSWG-1B	SUBSTATION					
36	D-030-SUB-IRP-1	SUBSTATION					
37	P1-030-SUB-LVSWG-1A	SUBSTATION					
38	P1-030-SUB-LVSWG-1B	SUBSTATION					
39	C1-030-SUB-ACUPS-1	SUBSTATION					
40	C2-030-SUB-ACUPS-1	SUBSTATION					
41	C1-030-SUB-DCUPS-1	SUBSTATION					
42	C2-030-SUB-DCUPS-1	SUBSTATION					
43	P-030-SUB-AVR-1A	SUBSTATION					
44	P-030-SUB-AVR-1B	SUBSTATION					
45	P1-030-SUB-DCUPS-1	SUBSTATION					
46	P-030-SUB-UPDP-1	SUBSTATION					
47	P-030-SUB-DCUPS-1A	SUBSTATION					
48	P-030-SUB-DCUPS-1B	SUBSTATION					

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE			
DATE			

Enppi PETROJET

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

CABLE TERMINATION AND SPLICING

SYSTEM NO.:

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	ITR NUMBER	DISPLINE	SHEET NO
PTJ-ELE-RFI-	27/03/2021	ITR-EL-0009	ELEC	1 OF 1

Item/Tag NO.	For All Cables tages in PTJ-ELE-RFI-			
Type :-		Core:		Size:

NO.	Description of check	RESUNT		
		ACCEPT	REJECT	N/A.
1	Check cable glands are correct type and size as per cable schedule.	✓		
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.	✓		
3	Check cable tag is done correctly.	✓		
4	Test and confirm conductor, phase continuity.	✓		
5	Check insulation resistance test (megger) is completed *'	✓		
6	Check Hi-pot test is completed, only for MV/HV cables *''			✓
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓		
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications	[illegible]		✓
9	Check enclosure cover is installed , no damages and no bolts are missing	✓		
10	Calibration test certificate of testing equipment to be checked.	✓		

Remarks :

*' : ITR-EL-006A/B

*'' :ITR-EL-008

	PETROJET	ENPPI	PMC
NAME :		[signature]	
SIGNATURE	[signature]		[signature]
DATE			

ITR-EL-0009

Enppi PETROJET

EGPC CRUDE OIL TANK FARM

EGPC

Owner :	Egyptian General Petroleum Corporation (EGPC)	Project No: 01251-100-030 :01251-100-031
Contractor	CONSORTIUM (ENPPI / PETROJET)	Document No: ITR-QC-0001 Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : CABLE TERMINATION AND SPLICING

NOTIFICATION NO. : PTJ-ELEC-RFI- 262 DISCIPLINE : E&I

DATE : 10/23/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
	CABLE TERMINATION AND SPLICING	MODULE 1	23-Oct-21				
1	P-030-SUB-ACUPS-1A						
2	P-030-SUB-ACUPS-1B						
3	P-030-SUB-ACUPS-BP						
4	C-030-SUB-PC-1						
5	P-030-T01-CPTR						
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	Islam Sherif [signature]	[signature]
DATE			

ITR-QC-0001

Enppi

PETROJET

EGPC CRUDE OIL TANK FARM

EGPC

INSPECTION AND TEST REPORT FOR

CABLE TERMINATION AND SPLICING

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	ITR NUMBER	SYSTEM NO.: DISPLINE	SHEET NO
262		ITR-EL-0009	ELEC	1 OF 1

Item/Tag NO.					
Type :-		Core:		Size:	

NO.	Description of check	RESUNT		
		ACCEPT	REJECT	N/A.
1	Check cable glands are correct type and size as per cable schedule.	✓		
2	Check there are no damages to cores, termination chamber layout is satisfactory, core identification is correct, crimped and pins satisfactory.	✓		
3	Check cable tag is done correctly.	✓		
4	Test and confirm conductor, phase continuity.	✓		
5	Check insulation resistance test (megger) is completed *'	✓		
6	Check Hi-pot test is completed, only for MV/HV cables *''			✓
7	Connect all cores at both ends and confirm all connections are correct as per termination diagram.	✓		
8	Confirm spare cores, screens are earthed and conform to design drawings/specifications	✓		
9	Check enclosure cover is installed , no damages and no bolts are missing	✓		
10	Calibration test certificate of testing equipment to be checked.			✓

Remarks :

....

....

....

	PETROJET	ENPPI	PMC
NAME :			
SIGNATURE	[signature]	Islam Sherif [signature]	[signature]
DATE			

Enppi PETROJET | EGPC CRUDE OIL TANK FARM | EGPC

Owner : Egyptian General Petroleum Corporation (EGPC) — Project No: 01251-100-[illegible] :01251-100-031

Contractor CONSORTIUM (ENPPI / PETROJET) — Document No: ITR-[illegible] Revision No. : 00

REQUEST FOR INSPECTION

ACTIVITY : Panel Installation

NOTIFICATION NO. : PTJ-RFI-EL- 143 DISCIPLINE : ELECTRICAL

DATE : 3/10/2021

NO.	DESCRIPTION	LOCATION	DATE / TIME	INSPECTION			REMARKS
				PETROJET	ENPPI	PMC	
	UPS Panel Installation	AGROUD MODULE 1 SUB BUILDING	10-Mar-21		C		
1	030-SUB-DCUPS-1						
2	030-SUB-ACUPS-1						

NOTE:

Inspection result : A - Approved B - Reject C - Approved with Comment

	PETROJET	ENPPI	PMC
NAME :		Reica [signature]	
SIGNATURE	[signature]		[signature]
DATE			

Enppi PETROJET	EGPC CRUDE OIL TANK FARM	EGPC

INSPECTION AND TEST REPORT FOR

LVSWG AND PANEL INSTALLATION

INSPECTION REPORT NUMBER	INSPECTION DATE & TIME	DOUCUMENT No.	DISPLINE	SHEET NO
PTJ-ELE-RFI- 143		ITR-EL-0012	ELECTRICAL	

JOB DESCRIPTION	AREA DESCRIPTION
	AGROUD MODULE 2 SUB BUILDING

Tag No.		Serial No.	

NO.	INSPECTION	RESULT		
		ACCEPT	REJECT	N/A.
1	Verify that equipment name plates are according to the corresponding drawing	✓		
2	Inspect physical and mechanical condition of the equipment and all components for clear damage.	✓		
3	Verify appropriate anchorage, required area clearances, physical damage, and correct alignment and cleanliness.	✓		
4	Inspect all doors, panels, and sections for paint, dents, scratches, fit, and missing hardware.	✓		
5	Verify that the barriers and covers are installed correctly.	✓		
6	Verify that filters are in place and all ventilation openings are clear from any kind of obstacles.			✓
7	Verify that main bus bar is connected between the cells.			✓
8	Verify that the earth bar is connected between the cells and connected to the earth.			✓
9	Verify the tightness of accessible bolted electrical connections using the calibrated torque-wrench method			✓
10	After tightening each electrical connection to the appropriate torque, apply some Varnish between the nut and the screw (or else , between the screw's head and			✓
11	Confirm that lubricants have been correctly applied at the recommended locations.			✓
12	Inspect all mechanical indicating devices for correct operation.			✓
13	Verify that draw out disconnecting contacts and interlocks function correctly.			✓
14	Verify that fuse and/or circuit breaker size and type correspond to drawings.	✓		
15	Verify that current and potential transformer ratios correspond to drawings.	✓		✓
16	Verify that all the interconnection control wires between the cells have been made correctly reference to the control drawings	✓		
17	Verify that customer connections to remote power, operators, interlocks, and indicators have been made.			✓

REMARKS: Ammeter glasses Cover must be replaced.

REFERENCE DOCUMENTS:

	PETROJET	ENPPI	PMC
NAME :		Reviewed [signature]	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.08- FAT Reports & Certificates

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.09- SAT Reports & Certificates

30GL-006

GUTOR	SITE ACCEPTANCE TEST COVER SHEET

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	Schneider Electric Egypt
Street:	Agrood 30	Street:	
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	Mahmoud.Reda@se.com
Date:	10/04/2021		

Project Name: 400VAC UPS for Crude Oil Tank Farm Project

GUTOR System Type: PDW3060-220/400-EAN-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑		GB-10: DC Alarm Test Sheet	☐
GB-2: General & Punch List	☑		GB-11: UPS Function Test Sheet	☑
GB-3: Installation check	☑		GB-12: DC Function Test Sheet	☐
GB-4: Rectifier test sheet	☑		GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☑		GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐		GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☑		GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑		GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☑		GB-18: Costumer Specific Test	☐

Total pages:

Performed by:	Whitnessed by:	Accepted by:
GUTOR Electronic LLC	**ENPPI**	**PPC**
Print: Alexander Ukhalov	Print: Ahmed Abdeen	Print: Mohamed Ibrahim
Sign:	Sign:	Sign: ....
Date: 2021-04-10	Date: 2021-04-10	Date: 2021-04-10

Q490.033 GB-1 Observe Safety Precautions UPS B

GUTOR	GENERAL & PUNCH LIST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Inverter Test	☑	☐	☐
Bypass Test	☐	☐	☑
Bypass Stabilizer Test	☑	☐	☐
Option Test	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☑

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	

Firmware Version:
ML Version 4.02 CL Version 4.03
MPU Version 3.03 FPU Version 3.01

Punchlist The following outstanding items have to be corrected:

by GUTOR:
Found the ISO Driver Board in PM A032 defective. The ISO Driver Board has taken from other project. New Board OP0396AB-002 will be send out to Client asap.

...

by Customer:
...
...
...
...
...

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	1.10.2021
VDC	Fluke 187	20516	1.10.2021
AAC	HIOKI	20515	1.10.2021
ADC	HIOKI	20515	1.10.2021
SCOPE	Fluke 123	20519	1.10.2021

General

IEC 62040-3 6.6.1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes:

Mechanical Checks

IEC 62040-3 6.6.1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / temporary)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	250 A
Permanent Upstream Fuses / Breaker rating	☑	☐	250 A

Notes: ...

GUTOR

RECTIFIER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value	Actual Value
Input Voltage	L1-L2	400 VAC	400 VAC
	L2-L3	400 VAC	399 VAC
	L1-L3	400 VAC	401 VAC
	L1 - N	230 VAC	230 VAC
	L2 - N	230 VAC	231 VAC
	L3 - N	230 VAC	229 VAC
Phase Rotation clockwise		☑ YES	☐ NO
Frequenzy		50 Hz	50 Hz
Float Charge Voltage		232 VDC	232 VDC
Boost Charge Voltage		241 VDC	241 VDC
Ripple Voltage			0.43 VAC
Ripple Current			4.1 AAC
Total DC Current Limitation		365 ADC	seeFA ADC
Battery Current Limitation		64.5 ADC	64.5 ADC

Notes:

GUTOR

INVERTER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-2 6.4/7.1/7.3

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
DC supply available (permanent / temporary)	☑	☐
Inverter safe for Start up	☑	☐

Electrical Tests

IEC 60146-2 7.3.5.1 IEC 62040-3 6.3.2 / 6.3.6

DC Input Voltage (V)		Load %	AC Output Voltage (V)			Frequency (Hz)
			L1 - N	L2 - N	L3 - N	
-15%	187	0	231.0	231.0	231.0	50.00
Nominal	220	0	231.0	231.0	231.0	50.00
20%	264	0	231.0	231.0	231.0	50.00
Float	232	0	231.0	231.0	231.0	50.00
Boost	241	0	231.0	231.0	231.0	50.00

	Set Value	Actual Value
Low DC warning	181 VDC	181 VDC
Low DC shutdown	158 VDC	158 VDC
High DC warning	282 VDC	282 VDC
High DC Shutdown	302 VDC	seeFA VDC

	OK	Not OK
Load Transfer to Bypass	☑	☐
Load Transfer to Inverter	☑	☐
Transfer Inhibition	☑	☐

	Yes	No
Output neutral connected to earth. Required ?	☑	☐

Notes: ...

GUTOR	BYPASS TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value
Input Voltage	L1-L2	400	VAC	VAC
	L2-L3	400	VAC	VAC
	L1-L3	400	VAC	VAC
	L1 - N	230	VAC	VAC
	L2 - N	230	VAC	VAC
	L3 - N	230	VAC	VAC
Phase Rotation clockwise		☑ YES		☐ NO
Frequenzy		50	Hz	Hz
Input Current	L1			AAC
	L2			AAC
	L3			AAC
Output Voltage	L1-L2	400	VAC	VAC
	L2-L3	400	VAC	VAC
	L1-L3	400	VAC	VAC
	L1 - N	230	VAC	VAC
	L2 - N	230	VAC	VAC
	L3 - N	230	VAC	VAC

Notes: ...

GUTOR	BYPASS STABILIZER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value	Actual Value
Input Voltage	L1-L2	VAC	402 VAC
	L2-L3	VAC	401 VAC
	L1-L3	VAC	401 VAC
	L1 - N	VAC	231 VAC
	L2 - N	VAC	231 VAC
	L3 - N	VAC	231 VAC
Phase Rotation clockwise		☑ YES	☐ NO
Frequenzy		Hz	50 Hz
Input Current	L1	-	AAC
	L2		AAC
	L3		AAC
Output Voltage	L1-L2	VAC	400 VAC
	L2-L3	VAC	399 VAC
	L1-L3	VAC	399 VAC
	L1 - N	VAC	230 VAC
	L2 - N	VAC	230 VAC
	L3 - N	VAC	230 VAC

	OK	Not OK
Control circuit of stabilizer tested	☑	☐
External fine tuning tested	☐	☐

Notes: ...

General IEC 62040-3 6.3.1 / 6.6.4

		OK	Not OK	N/A
P032	AC Input Voltage (door)	☑	☐	☐
P031	AC Input Current (door)	☑	☐	☐
P033	AC Input Frequency (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery voltage (door)	☑	☐	☐
P026	Battery Current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P092	Bypass Input Voltage (door)	☑	☐	☐
P091	Bypas Input Current (door)	☑	☐	☐
P093	Bypass Input Frequency (door)	☑	☐	☐
S091	Bypass Phase Selector Switch (door)	☑	☐	☐
H91-H96	Control Lighting (door)	☑	☐	
S200	Push Button Lamp Test (door)	☑	☐	☐
P102	Distribution Input Voltage (door)	☑	☐	☐
P101	Distribution Input Current (door)	☑	☐	☐
P103	Distribution Input Frequency (door)	☑	☐	☐
S101	Distribution Phase Selector Switch (door)	☑	☐	
H101A-H110A	DC Distribution Panel	☑	☐	☐
S300		☑	☐	☐
...	Battery Temperature Alarm	☑	☐	☐
...	Battery Temp. Compensation	☑	☐	☐
	Battery Monitoring System	☑	☐	
X062	Blocking of Boost Charge	☑	☐	☐
X063	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay Set Point 170V	☑	☐	☐
...	...	☐	☐	☐
Q100-Q110	Rating Distribution Breakers	☑	☐	☐
Q101-Q110	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus Analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry Contact	☑	☐	☐
E800-E810	Space Heater	☑	☐	☐
E080-E090	Panel Light	☑	☐	☐
P203	Battery Current (MCB Box)	☑	☐	☐
H205A-H205B	Control Lighting (MCB Box)	☑	☐	☐
		☐	☐	☐
Note:		☐	☐	☐

UPS ALARM TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Alarms IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED`s illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board
Rectifier mains fault	☑	☐	A077-K1
Rectifier failure	☑	☐	A078-K9
DC out of tolerance	☑	☐	A077-K2
	☐	☐	
Battery operation	☑	☐	A078-K8 / A025-X008
Battery discharged	☑	☐	A077-K4
Battery disconnected	☑	☐	A078-K7
DC Earth fault	☑	☐	A077-K5
Inverter fault	☑	☐	A078-K6
Overload inv./ bypass	☑	☐	A078-K5 see FAT
Inverter fuse blown	☑	☐	A077-K6
Asynchronous	☑	☐	A078-K4
Bypass mains fault	☑	☐	A077-K7
Manual bypass on	☑	☐	A078-K3
EN inhibited	☑	☐	A078-K2
EA inhibited	☑	☐	A078-K1
Paral. Cable interrupted	☑	☐	
Overtemperature	☑	☐	A077-K8
Fan failure	☑	☐	A077-K9
Power supply fault	☑	☐	A077-K10

Option Alarms

	OK	N/A	Relay Board
EA On	☑	☐	
EN On	☑	☐	
Inverter On	☑	☐	
Boost Charge On	☑	☐	
Rectifier On	☑	☐	
Mains Breaker On	☑	☐	
Mains Breaker Off	☑	☐	
Battery Breaker On	☑	☐	
Battery Breaker Off	☑	☐	
AC Dist. breaker tripped	☑	☐	
Bypass Breaker On	☑	☐	
Bypass Breaker Off	☑	☐	
Q100 On	☑	☐	
Q100 Off	☑	☐	
Common alarm	☑	☐	A025-X001

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition : UPS is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Open Battery breaker or fuses. System goes to Bypass Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Close Battery breaker or fuses.
- Set System to static bypass on the frontpanel,
  check green indicatior LED for EN and Display shows Bypass Operation
- Turn Manual Bypass switch to pos. Test. LED "Manual Bypass on" blinked
- Set off the System. Measure output voltage in distribution.
- Set on the System and set System to static bypass on the frontpanel,
  Display shows Bypass operation
- Turn Manual Bypass switch to pos. Auto.
- Change System back to normal operation on the frontpanel.
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

GUTOR

BATTERY TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name: MB645P

Battery Manufacturer: ALCAD

Battery Type: Ni-Cd

Capacity: 260 Ah / 5 hrs

No. of cells: 166

Autonomy: 30 min.at load 50kVA ambient temperature 40°C

Manufacturer date: July 2020

Battery Open Voltage 228 VDC (after recharging)

Notes:

GUTOR

FUNCTIONAL TEST REDUNDANT

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition: The following table show the behavier of both UPS Systems
if the Outputs connected together and the systems operate redun

1. Mains off on UPS 1.
   UPS 2 takes the complete load
   UPS 1 goes in HOT STANDBY
2. Mins off on UPS 2
   Both Systems go in Battery Operation
3. Battery UPS 1 off
   UPS 2 overtakes the complete load in Battery Operation
4. Battery UPS 2 off
   Both systems go in Bypass Operation
5.Mains UPS 1 comes back
   UPS1 goes in Normal Operation and overtakes the complete load
   UPS 2 goes in HOT STANDBY
6. Mains UPS 2 comes back
   Both systems go in Normal Operation with load sharing

1. Mains off on UPS 2
   UPS 1 takes the complete load
   UPS 2 goes in HOT STANDBY
2. Mains off on UPS 1
   Both Systems go in Battery Operation
3. Battery UPS 2 off
   UPS 1 overtakesthe complete load in Battery Operation
4. Battery UPS 1 off
   Both systems go in Bypass Operation
5. Mains UPS 2 comes back
   UPS 2 goes in Normal Operation and overtakes the complete load
   UPS 1 goes in HOT STANDBY
6. Mains UPS 1 comes back
   Both systems go in Normal Operation with load sharing

1. Set UPS 1 in Bypass Operation over the display. UPS 2 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 2 (not possible)
3. Switch off Bypass operation on UPS 1. UPS 2 goes to Normal Operation too

1. Set UPS 2 in Bypass Operation over the display. UPS 1 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 1 (not possible)
3. Switch off Bypass operation on UPS 2. UPS 1 goes to Normal Operation too

Reset alarms

Test performed successfully? ☑ YES ☑ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO

Dual operation test performed successfully? ☐ YES ☐ NO ☑ N/A

GUTOR

BATTERY INITAL CHARGE RECORD

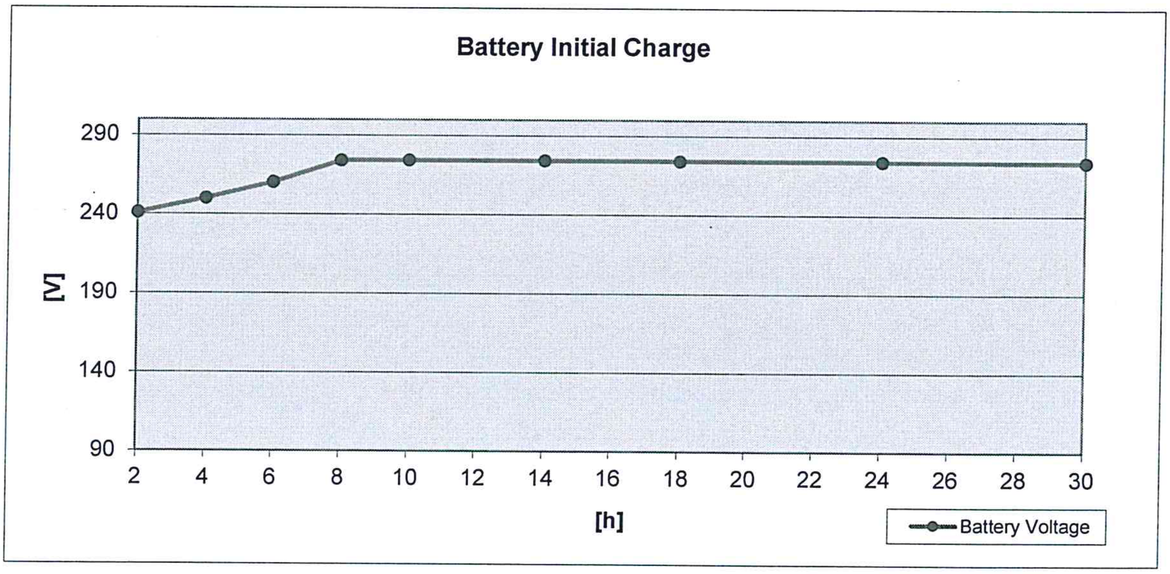
GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Charge start time:	08/00 h	Battery Type:	Ni-Cd
Charge start date:	08/04/2021	Manufacturer:	ALCAD
Room start temp:	26°C	Final Batt. Voltage:	273.6V
		Battery Name :	MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	82.67	0	27	26
10:00	2.00	240.97	129	27	26
12:00	4.00	249.99	129	28	27
14:00	6.00	260.15	129	28	27
16:00	8.00	274.11	95	28	27
18:00	10.00	274.19	61	29	27
22:00	14.00	274.2	62	29	27
02:00	18.00	274.11	68	30	28
08:00	24.00	274.08	75	31	29
14:00	30.00	273.64	80	33	32

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	0.510	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.660	1.650
2	0.500	1.450	1.520	1.550	1.650	1.650	1.650	1.650	1.650	1.650
3	0.500	1.450	1.490	1.560	1.660	1.650	1.650	1.650	1.650	1.650
4	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.650	1.650
5	0.490	1.460	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
6	0.480	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
7	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
8	0.500	1.450	1.500	1.540	1.650	1.650	1.650	1.650	1.650	1.650
9	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
10	0.510	1.450	1.500	1.540	1.650	1.660	1.660	1.650	1.650	1.650
11	0.510	1.450	1.500	1.560	1.640	1.650	1.650	1.660	1.650	1.650
12	0.500	1.450	1.520	1.560	1.660	1.660	1.650	1.650	1.660	1.650
13	0.500	1.450	1.500	1.550	1.660	1.660	1.660	1.650	1.650	1.650
14	0.500	1.460	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
15	0.490	1.460	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.650
16	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.660	1.650
17	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
18	0.510	1.450	1.490	1.560	1.650	1.650	1.660	1.650	1.650	1.650
19	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
20	0.500	1.450	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.650
21	0.490	1.450	1.490	1.570	1.660	1.660	1.650	1.650	1.650	1.650
22	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
23	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
24	0.510	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.650	1.650
25	0.510	1.450	1.490	1.550	1.650	1.660	1.650	1.650	1.650	1.650
26	0.500	1.460	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.650
27	0.480	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
28	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
29	0.490	1.450	1.520	1.540	1.660	1.650	1.650	1.650	1.650	1.650
30	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.660
31	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
32	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
33	0.500	1.450	1.490	1.550	1.660	1.650	1.650	1.650	1.650	1.650
34	0.510	1.450	1.490	1.560	1.650	1.660	1.650	1.650	1.650	1.650
35	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.660	1.660	1.650
36	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.650	1.650
37	0.500	1.450	1.500	1.550	1.650	1.650	1.660	1.660	1.660	1.660
38	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.660	1.650
39	0.510	1.450	1.490	1.550	1.650	1.660	1.660	1.660	1.660	1.660
40	0.500	1.450	1.500	1.550	1.650	1.650	1.660	1.660	1.660	1.650

GUTOR — BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	0.500	1.450	1.500	1.560	1.650	1.650	1.660	1.660	1.660	1.650
42	0.500	1.460	1.520	1.550	1.650	1.650	1.650	1.650	1.660	1.650
43	0.490	1.450	1.500	1.550	1.640	1.650	1.650	1.650	1.650	1.650
44	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
45	0.490	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
46	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
47	0.500	1.450	1.500	1.560	1.660	1.650	1.650	1.650	1.650	1.650
48	0.500	1.450	1.520	1.550	1.650	1.650	1.650	1.650	1.650	1.650
49	0.510	1.460	1.520	1.570	1.640	1.650	1.650	1.650	1.650	1.650
50	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.660	1.660	1.650
51	0.490	1.450	1.490	1.550	1.650	1.650	1.640	1.650	1.650	1.650
52	0.500	1.450	1.490	1.550	1.660	1.650	1.640	1.650	1.650	1.660
53	0.500	1.460	1.500	1.540	1.650	1.650	1.650	1.650	1.650	1.640
54	0.510	1.450	1.510	1.560	1.660	1.660	1.650	1.650	1.650	1.650
55	0.500	1.450	1.500	1.540	1.650	1.640	1.650	1.650	1.650	1.640
56	0.480	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
57	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
58	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.660	1.650
59	0.490	1.450	1.510	1.570	1.660	1.650	1.650	1.650	1.650	1.650
60	0.490	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
61	0.480	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
62	0.500	1.450	1.510	1.570	1.660	1.650	1.650	1.650	1.650	1.650
63	0.510	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
64	0.500	1.450	1.510	1.560	1.660	1.660	1.650	1.650	1.650	1.650
65	0.500	1.450	1.500	1.560	1.640	1.650	1.640	1.650	1.650	1.640
66	0.500	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.650	1.650
67	0.490	1.460	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
68	0.510	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
69	0.510	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
70	0.510	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.640
71	0.500	1.450	1.520	1.570	1.650	1.650	1.660	1.650	1.650	1.650
72	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
73	0.480	1.460	1.520	1.560	1.660	1.650	1.650	1.660	1.660	1.650
74	0.480	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
75	0.500	1.450	1.510	1.560	1.650	1.650	1.660	1.650	1.650	1.650
76	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
77	0.500	1.450	1.510	1.570	1.650	1.640	1.650	1.650	1.650	1.650
78	0.480	1.450	1.510	1.560	1.650	1.650	1.660	1.660	1.660	1.650
79	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
80	0.500	1.460	1.500	1.560	1.650	1.640	1.650	1.650	1.650	1.650

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	0.500	1.450	1.510	1.560	1.650	1.650	1.660	1.650	1.650	1.650
82	0.510	1.450	1.510	1.580	1.660	1.660	1.650	1.660	1.650	1.650
83	0.510	1.450	1.510	1.580	1.660	1.660	1.660	1.660	1.660	1.650
84	0.510	1.450	1.510	1.570	1.640	1.650	1.650	1.640	1.640	1.640
85	0.510	1.450	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.640
86	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.650	1.640	1.640
87	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
88	0.480	1.450	1.510	1.580	1.650	1.660	1.650	1.640	1.640	1.640
89	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.640	1.640
90	0.500	1.450	1.510	1.610	1.660	1.650	1.650	1.650	1.650	1.650
91	0.510	1.450	1.510	1.610	1.650	1.650	1.650	1.650	1.650	1.650
92	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.640	1.640	1.640
93	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
94	0.500	1.450	1.520	1.560	1.660	1.660	1.660	1.660	1.660	1.650
95	0.500	1.460	1.520	1.560	1.660	1.660	1.650	1.660	1.660	1.660
96	0.490	1.460	1.510	1.560	1.650	1.650	1.660	1.660	1.660	1.650
97	0.500	1.450	1.510	1.570	1.660	1.660	1.660	1.650	1.660	1.650
98	0.500	1.460	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.650
99	0.480	1.460	1.510	1.570	1.650	1.650	1.650	1.660	1.660	1.660
100	0.500	1.460	1.520	1.570	1.650	1.650	1.660	1.660	1.660	1.650
101	0.500	1.460	1.520	1.590	1.660	1.650	1.660	1.660	1.660	1.650
102	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
103	0.500	1.450	1.510	1.580	1.660	1.650	1.660	1.660	1.660	1.650
104	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
105	0.500	1.450	1.520	1.580	1.650	1.650	1.660	1.650	1.660	1.650
106	0.490	1.450	1.490	1.560	1.650	1.650	1.650	1.660	1.640	1.640
107	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.640
108	0.500	1.450	1.510	1.610	1.650	1.650	1.660	1.640	1.640	1.640
109	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
110	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
111	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
112	0.490	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.650
113	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
114	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.640
115	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
116	0.490	1.450	1.510	1.560	1.640	1.650	1.650	1.650	1.650	1.650
117	0.490	1.450	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.640
118	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
119	0.490	1.450	1.520	1.560	1.640	1.640	1.650	1.650	1.640	1.640
120	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.640	1.650	1.640

GUTOR	**BATTERY INITAL CHARGE RECORD**

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	0.500	1.450	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.640
122	0.510	1.450	1.500	1.580	1.650	1.650	1.660	1.650	1.650	1.640
123	0.510	1.460	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
124	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.660	1.650	1.650
125	0.500	1.450	1.510	1.570	1.650	1.660	1.660	1.660	1.660	1.650
126	0.480	1.450	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.660
127	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
128	0.490	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
129	0.500	1.450	1.510	1.570	1.650	1.660	1.650	1.650	1.650	1.650
130	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
131	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.660	1.660	1.650
132	0.480	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.640
133	0.500	1.450	1.500	1.570	1.650	1.660	1.650	1.640	1.640	1.650
134	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.640	1.640
135	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
136	0.490	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.640
137	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
138	0.500	1.450	1.510	1.570	1.650	1.650	1.660	1.650	1.650	1.650
139	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
140	0.500	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.640
141	0.500	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
142	0.490	1.450	1.520	1.590	1.650	1.660	1.650	1.650	1.650	1.650
143	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
144	0.500	1.460	1.520	1.580	1.650	1.650	1.650	1.650	1.640	1.650
145	0.500	1.450	1.520	1.600	1.650	1.650	1.650	1.650	1.650	1.650
146	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
147	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
148	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.640
149	0.500	1.450	1.510	1.590	1.650	1.660	1.650	1.650	1.650	1.650
150	0.500	1.460	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
151	0.490	1.450	1.510	1.590	1.650	1.650	1.660	1.650	1.650	1.650
152	0.490	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.650
153	0.500	1.450	1.510	1.590	1.640	1.640	1.660	1.650	1.650	1.650
154	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.640
155	0.510	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
156	0.500	1.460	1.520	1.580	1.660	1.650	1.650	1.650	1.650	1.650
157	0.480	1.450	1.510	1.590	1.650	1.660	1.660	1.650	1.650	1.640
158	0.500	1.460	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.650
159	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
160	0.490	1.450	1.510	1.580	1.660	1.650	1.660	1.660	1.660	1.650

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
162	0.500	1.460	1.510	1.570	1.660	1.660	1.660	1.660	1.660	1.650
163	0.500	1.460	1.510	1.590	1.650	1.650	1.650	1.640	1.650	1.650
164	0.510	1.450	1.520	1.590	1.650	1.650	1.650	1.640	1.650	1.650
165	0.500	1.460	1.510	1.590	1.650	1.660	1.650	1.660	1.660	1.650
166	0.500	1.450	1.510	1.590	1.650	1.650	1.660	1.660	1.650	1.650
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GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

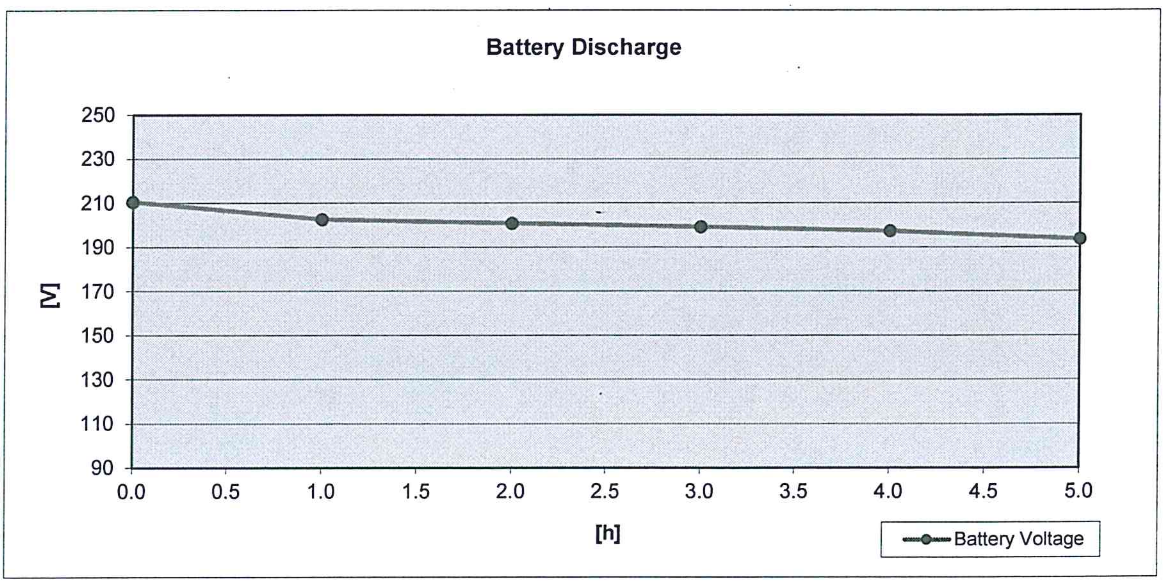
Discharge start time: 08/00 h
Discharge start date: 09/04/2021
Room start temp: 22°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage:
Battery Name: MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	210.49	133	23	22
08:00	1.00	202.52	133	23	22
09:00	2.00	200.86	131.7	24	22
10:00	3.00	199.2	130.6	26	23
11:00	4.00	197.37	129.2	27	23
12:00	5.00	193.68	128.3	27	25
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage ≥ 1 VDC ☑ YES ☐ NO
Battery string Tested successfully ≥ 166 VDC ☑ YES ☐ NO

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.290	1.220	1.210	1.200	1.190	1.170				
2	1.290	1.220	1.210	1.200	1.190	1.170				
3	1.290	1.220	1.210	1.200	1.190	1.170				
4	1.290	1.220	1.210	1.200	1.190	1.170				
5	1.280	1.220	1.210	1.200	1.190	1.170				
6	1.280	1.220	1.210	1.200	1.190	1.170				
7	1.280	1.220	1.210	1.200	1.190	1.170				
8	1.280	1.220	1.210	1.200	1.190	1.170				
9	1.280	1.220	1.210	1.200	1.190	1.170				
10	1.280	1.220	1.210	1.200	1.190	1.170				
11	1.280	1.220	1.210	1.200	1.190	1.170				
12	1.280	1.220	1.210	1.200	1.190	1.170				
13	1.280	1.220	1.210	1.200	1.190	1.170				
14	1.280	1.220	1.210	1.200	1.190	1.170				
15	1.280	1.220	1.210	1.200	1.190	1.170				
16	1.280	1.220	1.210	1.200	1.190	1.170				
17	1.280	1.220	1.210	1.200	1.190	1.170				
18	1.280	1.220	1.210	1.200	1.190	1.170				
19	1.280	1.220	1.210	1.200	1.190	1.170				
20	1.280	1.220	1.210	1.200	1.190	1.170				
21	1.280	1.220	1.210	1.200	1.190	1.170				
22	1.280	1.220	1.210	1.200	1.190	1.170				
23	1.280	1.220	1.210	1.200	1.190	1.170				
24	1.280	1.220	1.210	1.200	1.190	1.170				
25	1.280	1.220	1.210	1.200	1.190	1.170				
26	1.280	1.220	1.210	1.200	1.190	1.170				
27	1.280	1.220	1.210	1.200	1.190	1.170				
28	1.280	1.220	1.210	1.200	1.190	1.170				
29	1.280	1.220	1.210	1.200	1.190	1.170				
30	1.280	1.220	1.210	1.200	1.190	1.170				
31	1.280	1.220	1.210	1.200	1.190	1.170				
32	1.280	1.220	1.210	1.200	1.190	1.170				
33	1.280	1.220	1.210	1.200	1.190	1.170				
34	1.280	1.220	1.210	1.200	1.190	1.170				
35	1.280	1.220	1.210	1.200	1.190	1.170				
36	1.280	1.220	1.210	1.200	1.190	1.170				
37	1.280	1.220	1.210	1.200	1.190	1.170				
38	1.280	1.220	1.210	1.200	1.190	1.170				
39	1.280	1.220	1.210	1.200	1.190	1.170				
40	1.280	1.220	1.210	1.200	1.190	1.170				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.280	1.220	1.210	1.200	1.190	1.170				
42	1.280	1.220	1.210	1.200	1.190	1.170				
43	1.280	1.220	1.210	1.200	1.190	1.170				
44	1.280	1.220	1.210	1.200	1.190	1.170				
45	1.280	1.220	1.210	1.200	1.190	1.170				
46	1.270	1.220	1.210	1.200	1.190	1.170				
47	1.270	1.220	1.210	1.200	1.190	1.170				
48	1.270	1.220	1.210	1.200	1.190	1.170				
49	1.270	1.220	1.210	1.200	1.190	1.170				
50	1.270	1.220	1.210	1.200	1.190	1.170				
51	1.270	1.220	1.210	1.200	1.190	1.170				
52	1.270	1.220	1.210	1.200	1.190	1.170				
53	1.270	1.220	1.210	1.200	1.190	1.170				
54	1.270	1.220	1.210	1.200	1.190	1.170				
55	1.270	1.220	1.210	1.200	1.190	1.170				
56	1.270	1.220	1.210	1.200	1.190	1.170				
57	1.270	1.220	1.210	1.200	1.190	1.170				
58	1.270	1.220	1.210	1.200	1.190	1.170				
59	1.270	1.220	1.210	1.200	1.190	1.170				
60	1.270	1.220	1.210	1.200	1.190	1.170				
61	1.270	1.220	1.210	1.200	1.190	1.170				
62	1.270	1.220	1.210	1.200	1.190	1.170				
63	1.270	1.220	1.210	1.200	1.190	1.170				
64	1.270	1.220	1.210	1.200	1.190	1.170				
65	1.270	1.220	1.210	1.200	1.190	1.170				
66	1.270	1.220	1.210	1.200	1.190	1.170				
67	1.270	1.220	1.210	1.200	1.190	1.170				
68	1.270	1.220	1.210	1.200	1.190	1.170				
69	1.270	1.220	1.210	1.200	1.190	1.170				
70	1.270	1.220	1.210	1.200	1.190	1.170				
71	1.270	1.220	1.210	1.200	1.190	1.170				
72	1.270	1.220	1.210	1.200	1.190	1.170				
73	1.270	1.220	1.210	1.200	1.190	1.170				
74	1.270	1.220	1.210	1.200	1.190	1.170				
75	1.270	1.220	1.210	1.200	1.190	1.170				
76	1.270	1.220	1.210	1.200	1.190	1.170				
77	1.270	1.220	1.210	1.200	1.190	1.170				
78	1.270	1.220	1.210	1.200	1.190	1.170				
79	1.270	1.220	1.210	1.200	1.190	1.170				
80	1.270	1.220	1.210	1.200	1.190	1.170				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.270	1.220	1.210	1.200	1.190	1.170				
82	1.270	1.220	1.210	1.200	1.190	1.170				
83	1.270	1.220	1.210	1.200	1.190	1.170				
84	1.270	1.220	1.210	1.200	1.190	1.170				
85	1.270	1.220	1.210	1.200	1.190	1.170				
86	1.270	1.220	1.210	1.200	1.190	1.170				
87	1.270	1.220	1.210	1.200	1.190	1.170				
88	1.270	1.220	1.210	1.200	1.190	1.170				
89	1.270	1.220	1.210	1.200	1.190	1.170				
90	1.270	1.220	1.210	1.200	1.190	1.170				
91	1.260	1.220	1.210	1.200	1.190	1.160				
92	1.260	1.220	1.210	1.200	1.190	1.160				
93	1.260	1.220	1.210	1.200	1.190	1.170				
94	1.260	1.220	1.210	1.200	1.190	1.160				
95	1.260	1.220	1.210	1.200	1.190	1.160				
96	1.260	1.220	1.210	1.200	1.190	1.160				
97	1.260	1.220	1.210	1.200	1.190	1.170				
98	1.260	1.220	1.210	1.200	1.190	1.160				
99	1.260	1.220	1.210	1.200	1.180	1.170				
100	1.260	1.220	1.210	1.200	1.190	1.160				
101	1.260	1.220	1.210	1.200	1.190	1.170				
102	1.260	1.220	1.210	1.200	1.190	1.160				
103	1.260	1.220	1.210	1.200	1.190	1.160				
104	1.260	1.220	1.210	1.200	1.190	1.160				
105	1.260	1.220	1.210	1.200	1.180	1.160				
106	1.260	1.220	1.210	1.200	1.180	1.170				
107	1.260	1.220	1.210	1.200	1.190	1.160				
108	1.260	1.220	1.210	1.200	1.190	1.160				
109	1.260	1.220	1.210	1.200	1.190	1.160				
110	1.260	1.220	1.210	1.200	1.190	1.160				
111	1.260	1.220	1.210	1.200	1.180	1.160				
112	1.260	1.220	1.210	1.200	1.180	1.160				
113	1.260	1.220	1.210	1.200	1.190	1.160				
114	1.260	1.220	1.210	1.200	1.190	1.160				
115	1.260	1.220	1.210	1.200	1.190	1.160				
116	1.260	1.220	1.210	1.200	1.190	1.160				
117	1.260	1.220	1.210	1.200	1.190	1.160				
118	1.260	1.220	1.210	1.200	1.190	1.160				
119	1.260	1.220	1.210	1.200	1.190	1.160				
120	1.260	1.220	1.210	1.200	1.190	1.160				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	1.260	1.220	1.210	1.200	1.190	1.160				
122	1.260	1.220	1.210	1.200	1.190	1.160				
123	1.260	1.220	1.210	1.200	1.190	1.160				
124	1.260	1.220	1.210	1.200	1.190	1.160				
125	1.260	1.220	1.210	1.200	1.190	1.160				
126	1.260	1.220	1.210	1.200	1.180	1.160				
127	1.260	1.220	1.210	1.200	1.180	1.170				
128	1.260	1.220	1.210	1.200	1.180	1.170				
129	1.260	1.220	1.210	1.200	1.190	1.160				
130	1.260	1.220	1.210	1.200	1.180	1.160				
131	1.260	1.220	1.210	1.200	1.180	1.160				
132	1.260	1.220	1.210	1.200	1.180	1.160				
133	1.260	1.220	1.210	1.200	1.190	1.160				
134	1.260	1.220	1.210	1.200	1.190	1.160				
135	1.260	1.220	1.210	1.200	1.190	1.160				
136	1.260	1.220	1.210	1.200	1.190	1.160				
137	1.260	1.220	1.210	1.200	1.190	1.160				
138	1.260	1.220	1.210	1.200	1.190	1.160				
139	1.260	1.220	1.210	1.200	1.190	1.160				
140	1.260	1.220	1.210	1.200	1.190	1.170				
141	1.260	1.220	1.210	1.200	1.180	1.160				
142	1.260	1.220	1.210	1.200	1.180	1.160				
143	1.260	1.220	1.210	1.200	1.180	1.160				
144	1.260	1.220	1.210	1.200	1.190	1.160				
145	1.260	1.220	1.210	1.200	1.190	1.160				
146	1.260	1.220	1.210	1.200	1.180	1.160				
147	1.260	1.220	1.210	1.200	1.190	1.160				
148	1.260	1.220	1.210	1.200	1.180	1.160				
149	1.260	1.220	1.210	1.200	1.190	1.160				
150	1.260	1.220	1.210	1.200	1.190	1.160				
151	1.260	1.220	1.210	1.200	1.190	1.160				
152	1.260	1.220	1.210	1.200	1.190	1.160				
153	1.260	1.220	1.210	1.200	1.190	1.170				
154	1.260	1.220	1.210	1.200	1.190	1.170				
155	1.260	1.220	1.210	1.200	1.190	1.170				
156	1.260	1.220	1.210	1.200	1.190	1.170				
157	1.260	1.220	1.210	1.200	1.180	1.170				
158	1.260	1.220	1.210	1.200	1.190	1.170				
159	1.250	1.220	1.210	1.200	1.190	1.170				
160	1.250	1.220	1.210	1.200	1.190	1.170				

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
162	0.500	1.460	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
163	0.500	1.450	1.520	1.600	1.650	1.650	1.650	1.640	1.650	1.650
164	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
165	0.500	1.460	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
166	0.500	1.460	1.530	1.590	1.650	1.650	1.660	1.660	1.650	1.650
167										
168										
169										
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GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

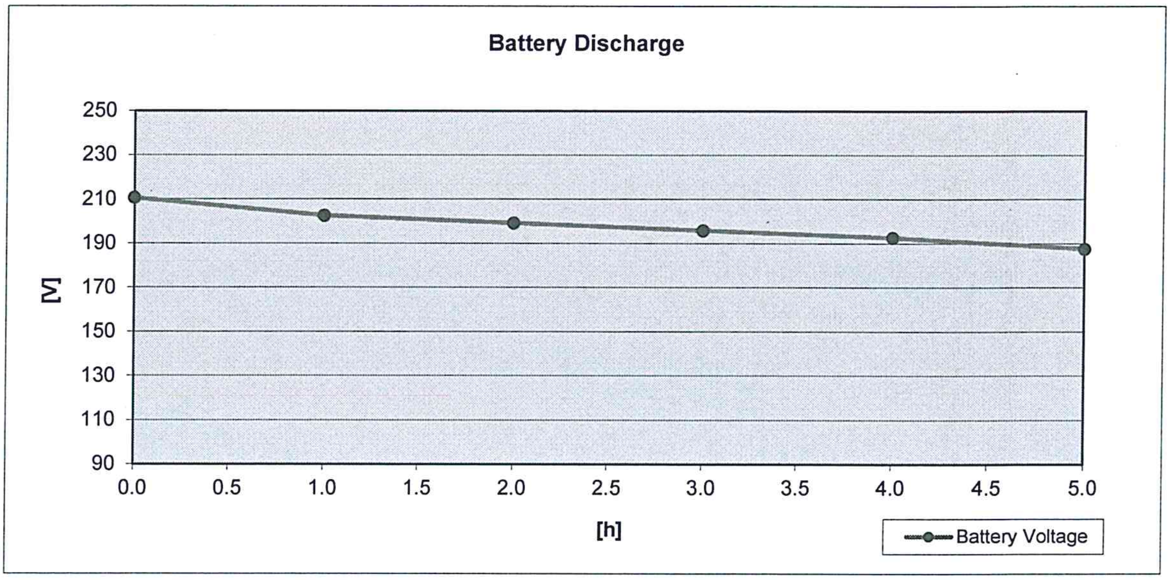
Discharge start time: 08/00 h
Discharge start date: 07/04/2021
Room start temp: 26°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage:
Battery Name: MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	210.58	124	27	26
08:00	1.00	202.52	124	27	26
09:00	2.00	199.2	129	27	26
10:00	3.00	195.88	130	27	26
11:00	4.00	192.56	127.7	28	26
12:00	5.00	187.58	128.2	29	27
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage ≥ 1 VDC ☑ YES ☐ NO
Battery string Tested successfully ≥ 166 VDC ☑ YES ☐ NO

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.280	1.220	1.200	1.180	1.160	1.130				
2	1.280	1.220	1.200	1.180	1.160	1.130				
3	1.280	1.220	1.200	1.180	1.160	1.130				
4	1.280	1.220	1.200	1.180	1.160	1.130				
5	1.280	1.220	1.200	1.180	1.160	1.130				
6	1.280	1.220	1.200	1.180	1.160	1.130				
7	1.280	1.220	1.200	1.180	1.160	1.130				
8	1.280	1.220	1.200	1.180	1.160	1.130				
9	1.280	1.220	1.200	1.180	1.160	1.130				
10	1.280	1.220	1.200	1.180	1.160	1.130				
11	1.280	1.220	1.200	1.180	1.160	1.130				
12	1.280	1.220	1.200	1.180	1.160	1.130				
13	1.280	1.220	1.200	1.180	1.160	1.130				
14	1.280	1.220	1.200	1.180	1.160	1.130				
15	1.280	1.220	1.200	1.180	1.160	1.130				
16	1.280	1.220	1.200	1.180	1.160	1.130				
17	1.280	1.220	1.200	1.180	1.160	1.130				
18	1.280	1.220	1.200	1.180	1.160	1.130				
19	1.280	1.220	1.200	1.180	1.160	1.130				
20	1.280	1.220	1.200	1.180	1.160	1.130				
21	1.280	1.220	1.200	1.180	1.160	1.130				
22	1.280	1.220	1.200	1.180	1.160	1.130				
23	1.280	1.220	1.200	1.180	1.160	1.130				
24	1.280	1.220	1.200	1.180	1.160	1.130				
25	1.280	1.220	1.200	1.180	1.160	1.130				
26	1.280	1.220	1.200	1.180	1.160	1.130				
27	1.280	1.220	1.200	1.180	1.160	1.130				
28	1.280	1.220	1.200	1.180	1.160	1.130				
29	1.280	1.220	1.200	1.180	1.160	1.130				
30	1.280	1.220	1.200	1.180	1.160	1.130				
31	1.280	1.220	1.200	1.180	1.160	1.130				
32	1.280	1.220	1.200	1.180	1.160	1.130				
33	1.280	1.220	1.200	1.180	1.160	1.130				
34	1.280	1.220	1.200	1.180	1.160	1.130				
35	1.280	1.220	1.200	1.180	1.160	1.130				
36	1.280	1.220	1.200	1.180	1.160	1.130				
37	1.280	1.220	1.200	1.180	1.160	1.130				
38	1.280	1.220	1.200	1.180	1.160	1.130				
39	1.280	1.220	1.200	1.180	1.160	1.130				
40	1.280	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.280	1.220	1.200	1.180	1.160	1.130				
42	1.280	1.220	1.200	1.180	1.160	1.130				
43	1.270	1.220	1.200	1.180	1.160	1.130				
44	1.270	1.220	1.200	1.180	1.160	1.130				
45	1.270	1.220	1.200	1.180	1.160	1.130				
46	1.270	1.220	1.200	1.180	1.160	1.130				
47	1.270	1.220	1.200	1.180	1.160	1.130				
48	1.270	1.220	1.200	1.180	1.160	1.130				
49	1.270	1.220	1.200	1.180	1.160	1.130				
50	1.270	1.220	1.200	1.180	1.160	1.130				
51	1.270	1.220	1.200	1.180	1.160	1.130				
52	1.270	1.220	1.200	1.180	1.160	1.130				
53	1.270	1.220	1.200	1.180	1.160	1.130				
54	1.270	1.220	1.200	1.180	1.160	1.130				
55	1.270	1.220	1.200	1.180	1.160	1.130				
56	1.270	1.220	1.200	1.180	1.160	1.130				
57	1.270	1.220	1.200	1.180	1.160	1.130				
58	1.270	1.220	1.200	1.180	1.160	1.130				
59	1.270	1.220	1.200	1.180	1.160	1.130				
60	1.270	1.220	1.200	1.180	1.160	1.130				
61	1.270	1.220	1.200	1.180	1.160	1.130				
62	1.270	1.220	1.200	1.180	1.160	1.130				
63	1.270	1.220	1.200	1.180	1.160	1.130				
64	1.270	1.220	1.200	1.180	1.160	1.130				
65	1.270	1.220	1.200	1.180	1.160	1.130				
66	1.270	1.220	1.200	1.180	1.160	1.130				
67	1.270	1.220	1.200	1.180	1.160	1.130				
68	1.270	1.220	1.200	1.180	1.160	1.130				
69	1.270	1.220	1.200	1.180	1.160	1.130				
70	1.270	1.220	1.200	1.180	1.160	1.130				
71	1.270	1.220	1.200	1.180	1.160	1.130				
72	1.270	1.220	1.200	1.180	1.160	1.130				
73	1.270	1.220	1.200	1.180	1.160	1.130				
74	1.270	1.220	1.200	1.180	1.160	1.130				
75	1.270	1.220	1.200	1.180	1.160	1.130				
76	1.270	1.220	1.200	1.180	1.160	1.130				
77	1.270	1.220	1.200	1.180	1.160	1.130				
78	1.270	1.220	1.200	1.180	1.160	1.130				
79	1.270	1.220	1.200	1.180	1.160	1.130				
80	1.270	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.270	1.220	1.200	1.180	1.160	1.130				
82	1.270	1.220	1.200	1.180	1.160	1.130				
83	1.270	1.220	1.200	1.180	1.160	1.130				
84	1.270	1.220	1.200	1.180	1.160	1.130				
85	1.270	1.220	1.200	1.180	1.160	1.130				
86	1.270	1.220	1.200	1.180	1.160	1.130				
87	1.270	1.220	1.200	1.180	1.160	1.130				
88	1.270	1.220	1.200	1.180	1.160	1.130				
89	1.270	1.220	1.200	1.180	1.160	1.130				
90	1.270	1.220	1.200	1.180	1.160	1.130				
91	1.270	1.220	1.200	1.180	1.160	1.130				
92	1.270	1.220	1.200	1.180	1.160	1.130				
93	1.270	1.220	1.200	1.180	1.160	1.130				
94	1.270	1.220	1.200	1.180	1.160	1.130				
95	1.270	1.220	1.200	1.180	1.160	1.130				
96	1.270	1.220	1.200	1.180	1.160	1.130				
97	1.270	1.220	1.200	1.180	1.160	1.130				
98	1.270	1.220	1.200	1.180	1.160	1.130				
99	1.270	1.220	1.200	1.180	1.160	1.130				
100	1.270	1.220	1.200	1.180	1.160	1.130				
101	1.260	1.220	1.200	1.180	1.160	1.130				
102	1.260	1.220	1.200	1.180	1.160	1.130				
103	1.260	1.220	1.200	1.180	1.160	1.130				
104	1.260	1.220	1.200	1.180	1.160	1.130				
105	1.260	1.220	1.200	1.180	1.160	1.130				
106	1.260	1.220	1.200	1.180	1.160	1.130				
107	1.260	1.220	1.200	1.180	1.160	1.130				
108	1.260	1.220	1.200	1.180	1.160	1.130				
109	1.260	1.220	1.200	1.180	1.160	1.130				
110	1.260	1.220	1.200	1.180	1.160	1.130				
111	1.260	1.220	1.200	1.180	1.160	1.130				
112	1.260	1.220	1.200	1.180	1.160	1.130				
113	1.260	1.220	1.200	1.180	1.160	1.130				
114	1.260	1.220	1.200	1.180	1.160	1.130				
115	1.260	1.220	1.200	1.180	1.160	1.130				
116	1.260	1.220	1.200	1.180	1.160	1.130				
117	1.260	1.220	1.200	1.180	1.160	1.130				
118	1.260	1.220	1.200	1.180	1.160	1.130				
119	1.260	1.220	1.200	1.180	1.160	1.130				
120	1.260	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	1.260	1.220	1.200	1.180	1.160	1.130				
122	1.260	1.220	1.200	1.180	1.160	1.130				
123	1.260	1.220	1.200	1.180	1.160	1.130				
124	1.260	1.220	1.200	1.180	1.160	1.130				
125	1.260	1.220	1.200	1.180	1.160	1.130				
126	1.260	1.220	1.200	1.180	1.160	1.130				
127	1.260	1.220	1.200	1.180	1.160	1.130				
128	1.260	1.220	1.200	1.180	1.160	1.130				
129	1.260	1.220	1.200	1.180	1.160	1.130				
130	1.260	1.220	1.200	1.180	1.160	1.130				
131	1.260	1.220	1.200	1.180	1.160	1.130				
132	1.260	1.220	1.200	1.180	1.160	1.130				
133	1.260	1.220	1.200	1.180	1.160	1.130				
134	1.260	1.220	1.200	1.180	1.160	1.130				
135	1.260	1.220	1.200	1.180	1.160	1.130				
136	1.260	1.220	1.200	1.180	1.160	1.130				
137	1.260	1.220	1.200	1.180	1.160	1.130				
138	1.260	1.220	1.200	1.180	1.160	1.130				
139	1.260	1.220	1.200	1.180	1.160	1.130				
140	1.260	1.220	1.200	1.180	1.160	1.130				
141	1.260	1.220	1.200	1.180	1.160	1.130				
142	1.260	1.220	1.200	1.180	1.160	1.130				
143	1.260	1.220	1.200	1.180	1.160	1.130				
144	1.260	1.220	1.200	1.180	1.160	1.130				
145	1.260	1.220	1.200	1.180	1.160	1.130				
146	1.260	1.220	1.200	1.180	1.160	1.130				
147	1.260	1.220	1.200	1.180	1.160	1.130				
148	1.260	1.220	1.200	1.180	1.160	1.130				
149	1.260	1.220	1.200	1.180	1.160	1.130				
150	1.260	1.220	1.200	1.180	1.160	1.130				
151	1.260	1.220	1.200	1.180	1.160	1.130				
152	1.260	1.220	1.200	1.180	1.160	1.130				
153	1.260	1.220	1.200	1.180	1.160	1.130				
154	1.260	1.220	1.200	1.180	1.160	1.130				
155	1.260	1.220	1.200	1.180	1.160	1.130				
156	1.260	1.220	1.200	1.180	1.160	1.130				
157	1.260	1.220	1.200	1.180	1.160	1.130				
158	1.260	1.220	1.200	1.180	1.160	1.130				
159	1.260	1.220	1.200	1.180	1.160	1.130				
160	1.260	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	1.260	1.220	1.200	1.180	1.160	1.130				
162	1.260	1.220	1.200	1.180	1.160	1.130				
163	1.260	1.220	1.200	1.180	1.160	1.130				
164	1.260	1.220	1.200	1.180	1.160	1.130				
165	1.260	1.220	1.200	1.180	1.160	1.130				
166	1.260	1.220	1.200	1.180	1.160	1.130				
167										
168										
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GUTOR	SITE ACCEPTANCE TEST COVER SHEET

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	Schneider Electric Egypt
Street:	Agrood 30	Street:	
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	Mahmoud.Reda@se.com
Date:	10/04/2021		

Project Name: 400VAC UPS for Crude Oil Tank Farm Project

GUTOR System Type: PDW3060-220/400-EAN-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑	GB-10: DC Alarm Test Sheet	☐
GB-2: General & Punch List	☑	GB-11: UPS Function Test Sheet	☑
GB-3: Installation check	☑	GB-12: DC Function Test Sheet	☐
GB-4: Rectifier test sheet	☑	GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☑	GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐	GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☑	GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑	GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☑	GB-18: Costumer Specific Test	☐

Total pages:

Performed by: **GUTOR Electronic LLC**	Whitnessed by: **ENPPI**	Accepted by: **PPC**
Print: Alexander Ukhalov	Print: Ahmed Nadeem	Print: Mohamed Ibrahim
Sign:	Sign:	Sign: ....
Date: 2021-04-10	Date: 2021-04-10	Date: 2021-04-10

GUTOR — GENERAL & PUNCH LIST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Inverter Test	☑	☐	☐
Bypass Test	☐	☐	☑
Bypass Stabilizer Test	☑	☐	☐
Option Test	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☑

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	

Firmware Version:
ML Version 4.02 CL Version 4.03
MPU Version 3.03 FPU Version 3.01

Punchlist The following outstanding items have to be corrected:

by GUTOR:

...

by Customer:
...
...
...
...
...

INSTALLATIONS CHECKS

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	1.10.2021
VDC	Fluke 187	20516	1.10.2021
AAC	HIOKI	20515	1.10.2021
ADC	HIOKI	20515	1.10.2021
SCOPE	Fluke 123	20519	1.10.2021

General

IEC 62040-3 6.6.1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes:

Mechanical Checks

IEC 62040-3 6.6.1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / temporary)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	250 A
Permanent Upstream Fuses / Breaker rating	☑	☐	250 A

Notes: ...

GUTOR	RECTIFIER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	400	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	229	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Float Charge Voltage		232	VDC	232	VDC
Boost Charge Voltage		241	VDC	241	VDC
Ripple Voltage				0.35	VAC
Ripple Current				3.9	AAC
Total DC Current Limitation		365	ADC	seeFAT	ADC
Battery Current Limitation		64.5	ADC	64.5	ADC

Notes:

GUTOR	INVERTER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General IEC 60146-2 6.4/7.1/7.3

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
DC supply available (permanent / temporary)	☑	☐
Inverter safe for Start up	☑	☐

Electrical Tests IEC 60146-2 7.3.5.1 IEC 62040-3 6.3.2 / 6.3.6

DC Input Voltage (V)		Load %	AC Output Voltage (V)			Frequency (Hz)
			L1 - N	L2 - N	L3 - N	
-15%	187	0	231.0	231.0	231.0	50.00
Nominal	220	0	231.0	231.0	231.0	50.00
20%	264	0	231.0	231.0	231.0	50.00
Float	232.4	0	231.0	231.0	231.0	50.00
Boost	240.7	0	231.0	231.0	231.0	50.00

	Set Value	Actual Value
Low DC warning	181 VDC	181 VDC
Low DC shutdown	158 VDC	158 VDC
High DC warning	282 VDC	282 VDC
High DC Shutdown	302 VDC	seeFA VDC

	OK	Not OK
Load Transfer to Bypass	☑	☐
Load Transfer to Inverter	☑	☐
Transfer Inhibition	☑	☐

	Yes	No
Output neutral connected to earth. Required ?	☑	☐

Notes: ...

BYPASS TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	401	VAC
	L2-L3	400	VAC	402	VAC
	L1-L3	400	VAC	401	VAC
	L1 - N	230	VAC	231	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Input Current	L1				AAC
	L2				AAC
	L3				AAC
Output Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	399	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC

Notes: ...

GUTOR	BYPASS STABILIZER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	401	VAC
	L2-L3	400	VAC	402	VAC
	L1-L3	400	VAC	401	VAC
	L1 - N	230	VAC	231	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Input Current	L1				AAC
	L2				AAC
	L3				AAC
Output Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	399	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC

	OK	Not OK
Control circuit of stabilizer tested	☑	☐
External fine tuning tested	☐	☐

Notes: ...

General

IEC 62040-3 6.3.1 / 6.6.4

		OK	Not OK	N/A
P032	AC Input Voltage (door)	☑	☐	☐
P031	AC Input Current (door)	☑	☐	☐
P033	AC Input Frequency (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery voltage (door)	☑	☐	☐
P026	Battery Current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P092	Bypass Input Voltage (door)	☑	☐	☐
P091	Bypas Input Current (door)	☑	☐	☐
P093	Bypass Input Frequency (door)	☑	☐	☐
S091	Bypass Phase Selector Switch (door)	☑	☐	☐
H91-H96	Control Lighting (door)	☑	☐	☐
S200	Push Button Lamp Test (door)	☑	☐	☐
P102	Distribution Input Voltage (door)	☑	☐	☐
P101	Distribution Input Current (door)	☑	☐	☐
P103	Distribution Input Frequency (door)	☑	☐	☐
S101	Distribution Phase Selector Switch (door)	☑	☐	☐
H101A-H110A	DC Distribution Panel	☑	☐	☐
S300		☑	☐	☐
...	Battery Temperature Alarm	☑	☐	☐
...	Battery Temp. Compensation	☑	☐	☐
	Battery Monitoring System	☑	☐	
X062	Blocking of Boost Charge	☑	☐	☐
X063	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay Set Point 170V	☑	☐	☐
...	...	☐	☐	☐
Q100-Q110	Rating Distribution Breakers	☑	☐	☐
Q101-Q110	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus Analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry Contact	☑	☐	☐
E800-E810	Space Heater	☑	☐	☐
E080-E090	Panel Light	☑	☐	☐
P203	Battery Current (MCB Box)	☑	☐	☐
H205A-H205B	Control Lighting (MCB Box)	☑	☐	☐

Note:

UPS ALARM TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Alarms

IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED`s illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board
Rectifier mains fault	☑	☐	A077-K1
Rectifier failure	☑	☐	A078-K9
DC out of tolerance	☑	☐	A077-K2
	☐	☐	
Battery operation	☑	☐	A078-K8 / A025-X008
Battery discharged	☑	☐	A077-K4
Battery disconnected	☑	☐	A078-K7
DC Earth fault	☑	☐	A077-K5
Inverter fault	☑	☐	A078-K6
Overload inv./ bypass	☑	☐	A078-K5 see FAT
Inverter fuse blown	☑	☐	A077-K6
Asynchronous	☑	☐	A078-K4
Bypass mains fault	☑	☐	A077-K7
Manual bypass on	☑	☐	A078-K3
EN inhibited	☑	☐	A078-K2
EA inhibited	☑	☐	A078-K1
Paral. Cable interrupted	☑	☐	
Overtemperature	☑	☐	A077-K8
Fan failure	☑	☐	A077-K9
Power supply fault	☑	☐	A077-K10
EA On	☑	☐	
EN On	☑	☐	
Inverter On	☑	☐	
Boost Charge On	☑	☐	
Rectifier On	☑	☐	
Mains Breaker On	☑	☐	
Mains Breaker Off	☑	☐	
Battery Breaker On	☑	☐	
Battery Breaker Off	☑	☐	
AC Dist. breaker tripped	☑	☐	
Bypass Breaker On	☑	☐	
Bypass Breaker Off	☑	☐	
Q100 On	☑	☐	
Q100 Off	☑	☐	
Common alarm	☑	☐	A025-X001

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition : UPS is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Open Battery breaker or fuses. System goes to Bypass Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Close Battery breaker or fuses.
- Set System to static bypass on the frontpanel, check green indicatior LED for EN and Display shows Bypass Operation
- Turn Manual Bypass switch to pos. Test. LED "Manual Bypass on" blinked
- Set off the System. Measure output voltage in distribution.
- Set on the System and set System to static bypass on the frontpanel, Display shows Bypass operation
- Turn Manual Bypass switch to pos. Auto.
- Change System back to normal operation on the frontpanel.
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

GUTOR	BATTERY TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name:	MB645P
Battery Manufacturer:	ALCAD
Battery Type:	Ni-Cd
Capacity:	260 Ah / 5 hrs
No. of cells:	166
Autonomy:	120 min.at load 50kVA ambient temperature 40°C
Manufacturer date:	July 2020
Battery Open Voltage	227 VDC (after recharging)

Notes:

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition: The following table show the behavier of both UPS Systems
if the Outputs connected together and the systems operate redun

1. Mains off on UPS 1.
   UPS 2 takes the complete load
   UPS 1 goes in HOT STANDBY
2. Mins off on UPS 2
   Both Systems go in Battery Operation
3. Battery UPS 1 off
   UPS 2 overtakes the complete load in Battery Operation
4. Battery UPS 2 off
   Both systems go in Bypass Operation
5. Mains UPS 1 comes back
   UPS1 goes in Normal Operation and overtakes the complete load
   UPS 2 goes in HOT STANDBY
6. Mains UPS 2 comes back
   Both systems go in Normal Operation with load sharing

1. Mains off on UPS 2
   UPS 1 takes the complete load
   UPS 2 goes in HOT STANDBY
2. Mains off on UPS 1
   Both Systems go in Battery Operation
3. Battery UPS 2 off
   UPS 1 overtakesthe complete load in Battery Operation
4. Battery UPS 1 off
   Both systems go in Bypass Operation
5. Mains UPS 2 comes back
   UPS 2 goes in Normal Operation and overtakes the complete load
   UPS 1 goes in HOT STANDBY
6. Mains UPS 1 comes back
   Both systems go in Normal Operation with load sharing

1. Set UPS 1 in Bypass Operation over the display. UPS 2 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 2 (not possible)
3. Switch off Bypass operation on UPS 1. UPS 2 goes to Normal Operation too

1. Set UPS 2 in Bypass Operation over the display. UPS 1 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 1 (not possible)
3. Switch off Bypass operation on UPS 2. UPS 1 goes to Normal Operation too

Reset alarms

Test performed successfully? ☑ YES ☑ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO

Dual operation test performed successfully? ☐ YES ☐ NO ☑ N/A

GUTOR

BATTERY INITAL CHARGE RECORD

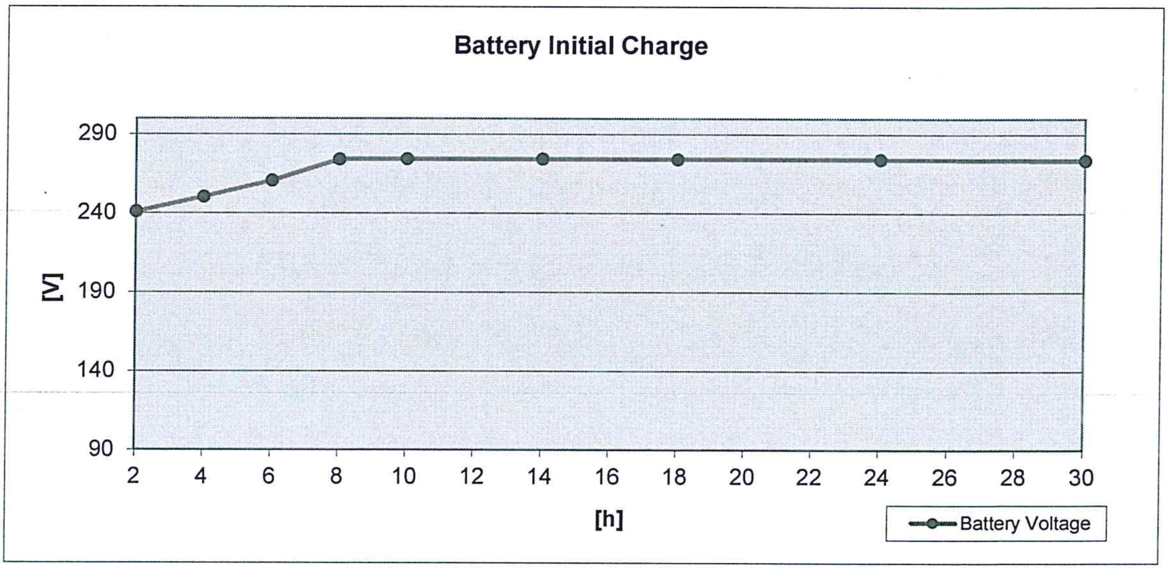
GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Charge start time:	08/00 h	Battery Type:	Ni-Cd
Charge start date:	04/06/2021	Manufacturer:	ALCAD
Room start temp:	21°C	Final Batt. Voltage:	273.5V
		Battery Name :	MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	83	0	21	21
10:00	2.00	240.94	129	22	22
12:00	4.00	250.24	129	23	23
14:00	6.00	260.44	129	23	23
16:00	8.00	274.14	58	23	23
18:00	10.00	274.17	58	24	24
22:00	14.00	274.19	58	27	25
02:00	18.00	274.09	65	29	25
08:00	24.00	274.03	69	30	27
14:00	30.00	273.58	80	31	28

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR

SITE ACCEPTANCE TEST

COVER SHEET

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	Schneider Electric Egypt
Street:	Agrood 30	Street:	
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	Mahmoud.Reda@se.com
Date:	10/04/2021		

Project Name: 400VAC UPS for Crude Oil Tank Farm Project

GUTOR System Type: PDW3060-220/400-EAN-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑	GB-10: DC Alarm Test Sheet	☐
GB-2: General & Punch List	☑	GB-11: UPS Function Test Sheet	☑
GB-3: Installation check	☑	GB-12: DC Function Test Sheet	☐
GB-4: Rectifier test sheet	☑	GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☑	GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐	GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☑	GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑	GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☑	GB-18: Costumer Specific Test	☐

Total pages:

Performed by:	Whitnessed by:	Accepted by:
GUTOR Electronic LLC	**ENPPI**	**PPC**
Print: Alexander Ukhalov	Print: Ahmed Nadeem	Print: Mohamed Ibrahim
Sign:	Sign:	Sign: ....
Date 2021-04-10	Date 2021-04-10	Date 2021-04-10

GUTOR

GENERAL & PUNCH LIST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Inverter Test	☑	☐	☐
Bypass Test	☐	☐	☑
Bypass Stabilizer Test	☑	☐	☐
Option Test	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☑

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	

Firmware Version:
ML Version 4.02 CL Version 4.03
MPU Version 3.03 FPU Version 3.01

Punchlist The following outstanding items have to be corrected:

by GUTOR:

...

by Customer:
...
...
...
...
...

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	1.10.2021
VDC	Fluke 187	20516	1.10.2021
AAC	HIOKI	20515	1.10.2021
ADC	HIOKI	20515	1.10.2021
SCOPE	Fluke 123	20519	1.10.2021

General

IEC 62040-3 6.6.1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes:

Mechanical Checks

IEC 62040-3 6.6.1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / temporary)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	250 A
Permanent Upstream Fuses / Breaker rating	☑	☐	250 A

Notes: ...

GUTOR

RECTIFIER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	400	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	229	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Float Charge Voltage		232	VDC	232	VDC
Boost Charge Voltage		241	VDC	241	VDC
Ripple Voltage				0.35	VAC
Ripple Current				3.9	AAC
Total DC Current Limitation		365	ADC	seeFAT	ADC
Battery Current Limitation		64.5	ADC	64.5	ADC

Notes:

GUTOR

INVERTER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-2 6.4/7.1/7.3

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
DC supply available (permanent / temporary)	☑	☐
Inverter safe for Start up	☑	☐

Electrical Tests

IEC 60146-2 7.3.5.1 IEC 62040-3 6.3.2 / 6.3.6

DC Input Voltage (V)		Load %	AC Output Voltage (V)			Frequency (Hz)
			L1 - N	L2 - N	L3 - N	
-15%	187	0	231.0	231.0	231.0	50.00
Nominal	220	0	231.0	231.0	231.0	50.00
20%	264	0	231.0	231.0	231.0	50.00
Float	232.4	0	231.0	231.0	231.0	50.00
Boost	240.7	0	231.0	231.0	231.0	50.00

	Set Value	Actual Value
Low DC warning	181 VDC	181 VDC
Low DC shutdown	158 VDC	158 VDC
High DC warning	282 VDC	282 VDC
High DC Shutdown	302 VDC	seeFA VDC

	OK	Not OK
Load Transfer to Bypass	☑	☐
Load Transfer to Inverter	☑	☐
Transfer Inhibition	☑	☐

	Yes	No
Output neutral connected to earth. Required ?	☑	☐

Notes: ...

BYPASS TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	401	VAC
	L2-L3	400	VAC	402	VAC
	L1-L3	400	VAC	401	VAC
	L1 - N	230	VAC	231	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Input Current	L1				AAC
	L2				AAC
	L3				AAC
Output Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	399	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC

Notes: ...

BYPASS STABILIZER TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60148-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60148-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	401	VAC
	L2-L3	400	VAC	402	VAC
	L1-L3	400	VAC	401	VAC
	L1 - N	230	VAC	231	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Input Current	L1				AAC
	L2				AAC
	L3				AAC
Output Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	399	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	230	VAC

	OK	Not OK
Control circuit of stabilizer tested	☑	☐
External fine tuning tested	☐	☐

Notes: ...

GUTOR	OPTION TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-3 6 3.1 / 6.6.4

		OK	Not OK	N/A
P032	AC Input Voltage (door)	☑	☐	☐
P031	AC Input Current (door)	☑	☐	☐
P033	AC Input Frequency (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery voltage (door)	☑	☐	☐
P026	Battery Current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P092	Bypass Input Voltage (door)	☑	☐	☐
P091	Bypas Input Current (door)	☑	☐	☐
P093	Bypass Input Frequency (door)	☑	☐	☐
S091	Bypass Phase Selector Switch (door)	☑	☐	☐
H91-H96	Control Lighting (door)	☑	☐	☐
S200	Push Button Lamp Test (door)	☑	☐	☐
P102	Distribution Input Voltage (door)	☑	☐	☐
P101	Distribution Input Current (door)	☑	☐	☐
P103	Distribution Input Frequency (door)	☑	☐	☐
S101	Distribution Phase Selector Switch (door)	☑	☐	☐
H101A-H110A	DC Distribution Panel	☑	☐	☐
S300		☑	☐	☐
...	Battery Temperature Alarm	☑	☐	☐
...	Battery Temp. Compensation	☑	☐	☐
	Battery Monitoring System	☑	☐	
X062	Blocking of Boost Charge	☑	☐	☐
X063	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay Set Point 170V	☑	☐	☐
...	...	☐	☐	☐
Q100-Q110	Rating Distribution Breakers	☑	☐	☐
Q101-Q110	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus Analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry Contact	☑	☐	☐
E800-E810	Space Heater	☑	☐	☐
E080-E090	Panel Light	☑	☐	☐
P203	Battery Current (MCB Box)	☑	☐	☐
H205A-H205B	Control Lighting (MCB Box)	☑	☐	☐

Note:

Alarms

IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED`s illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board
Rectifier mains fault	☑	☐	A077-K1
Rectifier failure	☑	☐	A078-K9
DC out of tolerance	☑	☐	A077-K2
	☐	☐	
Battery operation	☑	☐	A078-K8 / A025-X008
Battery discharged	☑	☐	A077-K4
Battery disconnected	☑	☐	A078-K7
DC Earth fault	☑	☐	A077-K5
Inverter fault	☑	☐	A078-K6
Overload inv./ bypass	☑	☐	A078-K5 see FAT
Inverter fuse blown	☑	☐	A077-K6
Asynchronous	☑	☐	A078-K4
Bypass mains fault	☑	☐	A077-K7
Manual bypass on	☑	☐	A078-K3
EN inhibited	☑	☐	A078-K2
EA inhibited	☑	☐	A078-K1
Paral. Cable interrupted	☑	☐	
Overtemperature	☑	☐	A077-K8
Fan failure	☑	☐	A077-K9
Power supply fault	☑	☐	A077-K10
EA On	☑	☐	
EN On	☑	☐	
Inverter On	☑	☐	
Boost Charge On	☑	☐	
Rectifier On	☑	☐	
Mains Breaker On	☑	☐	
Mains Breaker Off	☑	☐	
Battery Breaker On	☑	☐	
Battery Breaker Off	☑	☐	
AC Dist. breaker tripped	☑	☐	
Bypass Breaker On	☑	☐	
Bypass Breaker Off	☑	☐	
Q100 On	☑	☐	
Q100 Off	☑	☐	
Common alarm	☑	☐	A025-X001

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition : UPS is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Open Battery breaker or fuses. System goes to Bypass Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Close Battery breaker or fuses.
- Set System to static bypass on the frontpanel,
  check green indicatior LED for EN and Display shows Bypass Operation
- Turn Manual Bypass switch to pos. Test. LED "Manual Bypass on" blinked
- Set off the System. Measure output voltage in distribution.
- Set on the System and set System to static bypass on the frontpanel,
  Display shows Bypass operation
- Turn Manual Bypass switch to pos. Auto.
- Change System back to normal operation on the frontpanel.
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

BATTERY TEST

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name:	MB645P
Battery Manufacturer:	ALCAD
Battery Type:	Ni-Cd
Capacity:	260 Ah / 5 hrs
No. of cells:	166
Autonomy:	120 min.at load 50kVA ambient temperature 40°C
Manufacturer date:	July 2020
Battery Open Voltage	227 VDC (after recharging)

Notes:

GUTOR

FUNCTIONAL TEST REDUNDANT

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition: The following table show the behavier of both UPS Systems
if the Outputs connected together and the systems operate redun

1. Mains off on UPS 1.
   UPS 2 takes the complete load
   UPS 1 goes in HOT STANDBY
2. Mins off on UPS 2
   Both Systems go in Battery Operation
3. Battery UPS 1 off
   UPS 2 overtakes the complete load in Battery Operation
4. Battery UPS 2 off
   Both systems go in Bypass Operation
5. Mains UPS 1 comes back.
   UPS1 goes in Normal Operation and overtakes the complete load
   UPS 2 goes in HOT STANDBY
6. Mains UPS 2 comes back
   Both systems go in Normal Operation with load sharing

1. Mains off on UPS 2
   UPS 1 takes the complete load
   UPS 2 goes in HOT STANDBY
2. Mains off on UPS 1
   Both Systems go in Battery Operation
3. Battery UPS 2 off
   UPS 1 overtakesthe complete load in Battery Operation
4. Battery UPS 1 off
   Both systems go in Bypass Operation
5. Mains UPS 2 comes back
   UPS 2 goes in Normal Operation and overtakes the complete load
   UPS 1 goes in HOT STANDBY
6. Mains UPS 1 comes back
   Both systems go in Normal Operation with load sharing

1. Set UPS 1 in Bypass Operation over the display. UPS 2 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 2 (not possible)
3. Switch off Bypass operation on UPS 1. UPS 2 goes to Normal Operation too

1. Set UPS 2 in Bypass Operation over the display. UPS 1 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 1 (not possible)
3. Switch off Bypass operation on UPS 2. UPS 1 goes to Normal Operation too

Reset alarms

Test performed successfully? ☑ YES ☑ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO

Dual operation test performed successfully? ☐ YES ☐ NO ☑ N/A

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

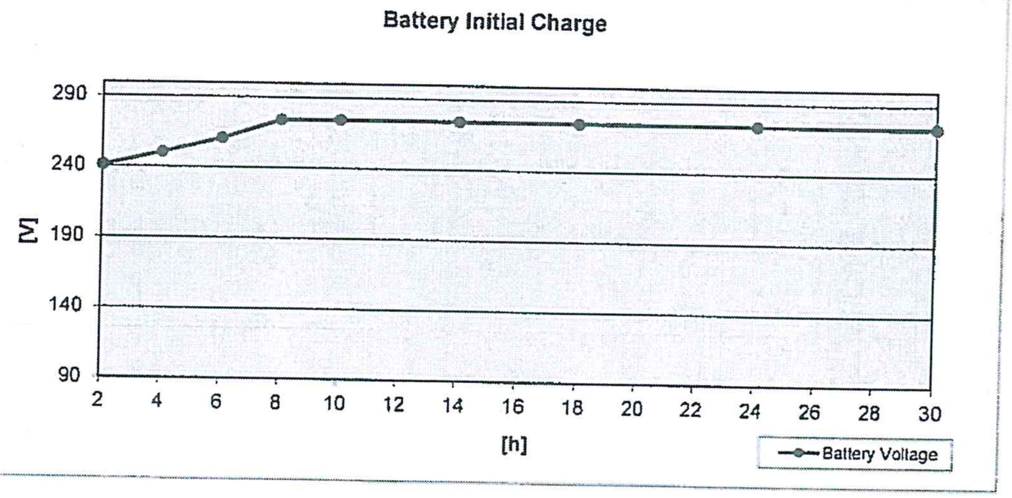
Charge start time: 08/00 h
Charge start date: 04/06/2021
Room start temp: 21°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage: 273.5V
Battery Name : MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	83	0	21	21
10:00	2.00	240.94	129	22	22
12:00	4.00	250.24	129	23	23
14:00	6.00	260.44	129	23	23
16:00	8.00	274.14	58	23	23
18:00	10.00	274.17	58	24	24
22:00	14.00	274.19	58	27	25
02:00	18.00	274.09	65	29	25
08:00	24.00	274.03	69	30	27
14:00	30.00	273.58	80	31	28

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR — BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	0.500	1.450	1.490	1.560	1.650	1.650	1.660	1.660	1.660	1.650
2	0.500	1.450	1.490	1.540	1.650	1.650	1.650	1.650	1.650	1.650
3	0.500	1.450	1.490	1.560	1.660	1.650	1.650	1.650	1.650	1.650
4	0.500	1.450	1.490	1.540	1.650	1.650	1.650	1.650	1.650	1.650
5	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
6	0.500	1.450	1.500	1.560	1.660	1.650	1.650	1.650	1.650	1.650
7	0.500	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.650	1.650
8	0.500	1.450	1.500	1.560	1.660	1.650	1.660	1.650	1.650	1.650
9	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
10	0.500	1.450	1.500	1.560	1.650	1.660	1.660	1.650	1.650	1.650
11	0.500	1.450	1.490	1.560	1.660	1.650	1.650	1.650	1.650	1.650
12	0.500	1.450	1.500	1.560	1.660	1.660	1.650	1.650	1.650	1.650
13	0.500	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.650	1.650
14	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
15	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
16	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
17	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
18	0.500	1.450	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.650
19	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
20	0.500	1.450	1.500	1.560	1.660	1.660	1.650	1.650	1.650	1.650
21	0.500	1.450	1.500	1.560	1.660	1.660	1.650	1.650	1.650	1.650
22	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
23	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
24	0.500	1.450	1.500	1.560	1.660	1.660	1.650	1.650	1.650	1.650
25	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
26	0.500	1.450	1.500	1.570	1.660	1.660	1.650	1.650	1.650	1.650
27	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
28	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
29	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.650	1.650
30	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.660
31	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
32	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
33	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
34	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
35	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.660	1.660	1.650
36	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.650	1.650
37	0.500	1.450	1.500	1.560	1.650	1.650	1.660	1.660	1.660	1.660
38	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.660	1.650
39	0.500	1.450	1.490	1.550	1.650	1.650	1.660	1.660	1.660	1.660
40	0.500	1.450	1.500	1.550	1.650	1.650	1.660	1.660	1.660	1.660

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	0.500	1.450	1.500	1.560	1.650	1.650	1.660	1.660	1.660	1.650
42	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.660	1.650
43	0.500	1.450	1.500	1.550	1.650	1.660	1.650	1.650	1.650	1.650
44	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
45	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
46	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
47	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
48	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
49	0.500	1.460	1.490	1.550	1.640	1.640	1.650	1.650	1.650	1.650
50	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.660	1.660	1.650
51	0.500	1.450	1.490	1.550	1.650	1.650	1.640	1.640	1.640	1.640
52	0.500	1.450	1.490	1.550	1.650	1.650	1.640	1.640	1.640	1.640
53	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
54	0.500	1.450	1.510	1.560	1.660	1.660	1.650	1.650	1.650	1.650
55	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
56	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
57	0.500	1.450	1.490	1.560	1.650	1.650	1.640	1.640	1.640	1.640
58	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
59	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
60	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
61	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
62	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
63	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
64	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
65	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
66	0.500	1.460	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
67	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
68	0.500	1.450	1.510	1.550	1.650	1.650	1.650	1.650	1.650	1.650
69	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
70	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.640
71	0.500	1.450	1.520	1.570	1.650	1.650	1.660	1.650	1.650	1.650
72	0.500	1.460	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
73	0.500	1.460	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
74	0.500	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
75	0.500	1.460	1.510	1.560	1.650	1.650	1.660	1.650	1.650	1.650
76	0.500	1.460	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
77	0.500	1.450	1.520	1.570	1.650	1.650	1.660	1.650	1.650	1.650
78	0.500	1.450	1.510	1.560	1.650	1.650	1.660	1.660	1.660	1.650
79	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.640
80	0.500	1.460	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00.00	12:00:00	14:00.00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	0.500	1.450	1.510	1.560	1.650	1.650	1.660	1.650	1.650	1.650
82	0.500	1.450	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
83	0.500	1.450	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
84	0.500	1.450	1.510	1.570	1.650	1.650	1.650	1.640	1.640	1.640
85	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
86	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.640	1.640	1.640
87	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
88	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.640	1.640	1.640
89	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.640	1.640	1.640
90	0.500	1.450	1.520	1.610	1.650	1.650	1.650	1.650	1.650	1.650
91	0.500	1.450	1.520	1.610	1.650	1.650	1.650	1.650	1.650	1.650
92	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.650	1.640	1.640
93	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
94	0.500	1.450	1.520	1.560	1.660	1.660	1.660	1.660	1.660	1.650
95	0.500	1.460	1.530	1.560	1.660	1.660	1.660	1.660	1.660	1.660
96	0.500	1.460	1.510	1.560	1.650	1.650	1.660	1.660	1.660	1.650
97	0.500	1.450	1.520	1.570	1.660	1.660	1.660	1.660	1.660	1.650
98	0.500	1.460	1.520	1.580	1.650	1.650	1.660	1.660	1.660	1.650
99	0.500	1.460	1.530	1.590	1.650	1.650	1.660	1.660	1.660	1.660
100	0.500	1.460	1.530	1.600	1.650	1.650	1.660	1.660	1.660	1.650
101	0.500	1.460	1.530	1.600	1.660	1.650	1.660	1.660	1.660	1.650
102	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
103	0.500	1.450	1.520	1.560	1.660	1.650	1.660	1.660	1.660	1.650
104	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
105	0.500	1.450	1.520	1.570	1.650	1.650	1.660	1.650	1.660	1.650
106	0.500	1.450	1.490	1.560	1.640	1.640	1.640	1.660	1.640	1.640
107	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.640
108	0.500	1.450	1.520	1.610	1.650	1.650	1.650	1.640	1.640	1.640
109	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
110	0.500	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
111	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
112	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
113	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
114	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.640
115	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
116	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
117	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
118	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
119	0.500	1.450	1.490	1.560	1.640	1.640	1.650	1.650	1.640	1.640
120	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.640	1.650	1.640

GUTOR	BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	0.500	1.450	1.500	1.560	1.640	1.640	1.650	1.650	1.650	1.640
122	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.640
123	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.640
124	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.660	1.650	1.650
125	0.500	1.450	1.520	1.600	1.650	1.660	1.660	1.660	1.660	1.650
126	0.500	1.450	1.530	1.610	1.650	1.650	1.660	1.660	1.660	1.660
127	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
128	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
129	0.500	1.450	1.520	1.590	1.650	1.660	1.650	1.650	1.650	1.650
130	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
131	0.500	1.450	1.530	1.610	1.650	1.650	1.660	1.660	1.660	1.650
132	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
133	0.500	1.450	1.500	1.570	1.650	1.660	1.650	1.640	1.640	1.640
134	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.640	1.640
135	0.500	1.450	1.510	1.580	1.650	1.640	1.650	1.650	1.650	1.650
136	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
137	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
138	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
139	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
140	0.500	1.460	1.520	1.610	1.650	1.650	1.650	1.650	1.650	1.640
141	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
142	0.500	1.450	1.520	1.580	1.650	1.660	1.650	1.650	1.650	1.650
143	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
144	0.500	1.460	1.510	1.580	1.650	1.650	1.650	1.650	1.640	1.640
145	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
146	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
147	0.500	1.450	1.530	1.600	1.650	1.650	1.650	1.650	1.650	1.650
148	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.640
149	0.500	1.450	1.530	1.600	1.650	1.660	1.650	1.650	1.650	1.650
150	0.500	1.460	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
151	0.500	1.450	1.530	1.610	1.650	1.650	1.660	1.650	1.650	1.650
152	0.500	1.460	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.650
153	0.500	1.450	1.530	1.610	1.650	1.660	1.660	1.650	1.650	1.650
154	0.500	1.450	1.520	1.560	1.660	1.660	1.650	1.650	1.650	1.640
155	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
156	0.500	1.460	1.520	1.580	1.660	1.650	1.660	1.650	1.650	1.650
157	0.500	1.450	1.520	1.590	1.650	1.660	1.650	1.650	1.650	1.640
158	0.500	1.460	1.520	1.580	1.650	1.650	1.660	1.660	1.660	1.650
159	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.660	1.650	1.650
160	0.500	1.460	1.520	1.570	1.660	1.660	1.660	1.660	1.660	1.650

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
162	0.500	1.460	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
163	0.500	1.450	1.520	1.600	1.650	1.650	1.650	1.640	1.650	1.650
164	0.500	1.450	1.520	1.590	1.650	1.650	1.650	1.650	1.650	1.650
165	0.500	1.460	1.520	1.580	1.660	1.660	1.660	1.660	1.660	1.650
166	0.500	1.460	1.530	1.590	1.650	1.650	1.660	1.660	1.650	1.650
167										
168										
169										
170										
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173										
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198										
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200										

Q490 033 GB-13	Observe Safety Precautions	Charger A

GUTOR

BATTERY DISCHARGE RECORD

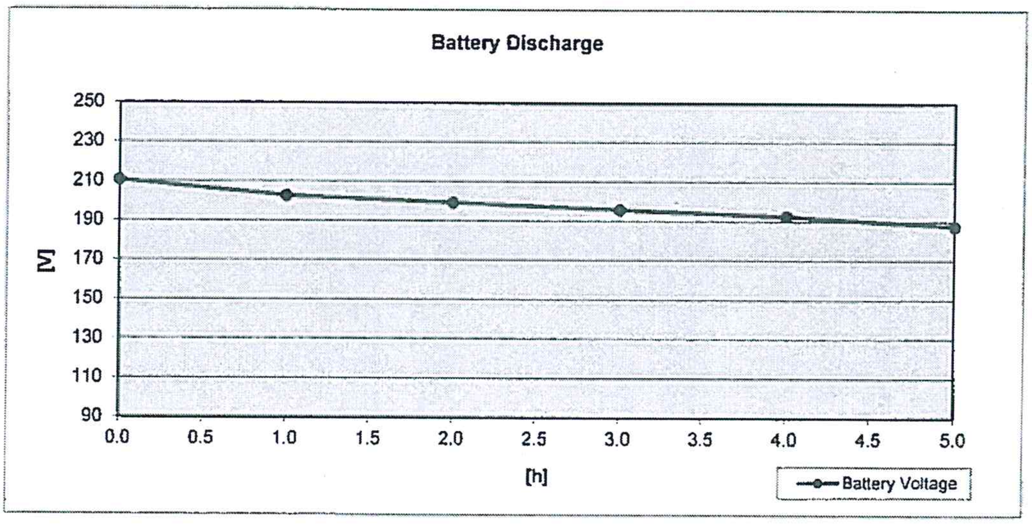
GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Discharge start time:	08/00 h	Battery Type:	Ni-Cd
Discharge start date:	07/04/2021	Manufacturer:	ALCAD
Room start temp:	26°C	Final Batt. Voltage:	
		Battery Name:	MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	210.58	124	27	26
08:00	1.00	202.52	124	27	26
09.00	2.00	199.2	129	27	26
10:00	3.00	195.88	130	27	26
11:00	4.00	192.56	127.7	28	26
12:00	5.00	187.58	128.2	29	27
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage	≥ 1	VDC	☑ YES	☐ NO
Battery string Tested successfully	≥ 166	VDC	☑ YES	☐ NO

GUTOR	BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.280	1.220	1.200	1.180	1.160	1.130				
2	1.280	1.220	1.200	1.180	1.160	1.130				
3	1.280	1.220	1.200	1.180	1.160	1.130				
4	1.280	1.220	1.200	1.180	1.160	1.130				
5	1.280	1.220	1.200	1.180	1.160	1.130				
6	1.280	1.220	1.200	1.180	1.160	1.130				
7	1.280	1.220	1.200	1.180	1.160	1.130				
8	1.280	1.220	1.200	1.180	1.160	1.130				
9	1.280	1.220	1.200	1.180	1.160	1.130				
10	1.280	1.220	1.200	1.180	1.160	1.130				
11	1.280	1.220	1.200	1.180	1.160	1.130				
12	1.280	1.220	1.200	1.180	1.160	1.130				
13	1.280	1.220	1.200	1.180	1.160	1.130				
14	1.280	1.220	1.200	1.180	1.160	1.130				
15	1.280	1.220	1.200	1.180	1.160	1.130				
16	1.280	1.220	1.200	1.180	1.160	1.130				
17	1.280	1.220	1.200	1.180	1.160	1.130				
18	1.280	1.220	1.200	1.180	1.160	1.130				
19	1.280	1.220	1.200	1.180	1.160	1.130				
20	1.280	1.220	1.200	1.180	1.160	1.130				
21	1.280	1.220	1.200	1.180	1.160	1.130				
22	1.280	1.220	1.200	1.180	1.160	1.130				
23	1.280	1.220	1.200	1.180	1.160	1.130				
24	1.280	1.220	1.200	1.180	1.160	1.130				
25	1.280	1.220	1.200	1.180	1.160	1.130				
26	1.280	1.220	1.200	1.180	1.160	1.130				
27	1.280	1.220	1.200	1.180	1.160	1.130				
28	1.280	1.220	1.200	1.180	1.160	1.130				
29	1.280	1.220	1.200	1.180	1.160	1.130				
30	1.280	1.220	1.200	1.180	1.160	1.130				
31	1.280	1.220	1.200	1.180	1.160	1.130				
32	1.280	1.220	1.200	1.180	1.160	1.130				
33	1.280	1.220	1.200	1.180	1.160	1.130				
34	1.280	1.220	1.200	1.180	1.160	1.130				
35	1.280	1.220	1.200	1.180	1.160	1.130				
36	1.280	1.220	1.200	1.180	1.160	1.130				
37	1.280	1.220	1.200	1.180	1.160	1.130				
38	1.280	1.220	1.200	1.180	1.160	1.130				
39	1.280	1.220	1.200	1.180	1.160	1.130				
40	1.280	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.280	1.220	1.200	1.180	1.160	1.130				
42	1.280	1.220	1.200	1.180	1.160	1.130				
43	1.270	1.220	1.200	1.180	1.160	1.130				
44	1.270	1.220	1.200	1.180	1.160	1.130				
45	1.270	1.220	1.200	1.180	1.160	1.130				
46	1.270	1.220	1.200	1.180	1.160	1.130				
47	1.270	1.220	1.200	1.180	1.160	1.130				
48	1.270	1.220	1.200	1.180	1.160	1.130				
49	1.270	1.220	1.200	1.180	1.160	1.130				
50	1.270	1.220	1.200	1.180	1.160	1.130				
51	1.270	1.220	1.200	1.180	1.160	1.130				
52	1.270	1.220	1.200	1.180	1.160	1.130				
53	1.270	1.220	1.200	1.180	1.160	1.130				
54	1.270	1.220	1.200	1.180	1.160	1.130				
55	1.270	1.220	1.200	1.180	1.160	1.130				
56	1.270	1.220	1.200	1.180	1.160	1.130				
57	1.270	1.220	1.200	1.180	1.160	1.130				
58	1.270	1.220	1.200	1.180	1.160	1.130				
59	1.270	1.220	1.200	1.180	1.160	1.130				
60	1.270	1.220	1.200	1.180	1.160	1.130				
61	1.270	1.220	1.200	1.180	1.160	1.130				
62	1.270	1.220	1.200	1.180	1.160	1.130				
63	1.270	1.220	1.200	1.180	1.160	1.130				
64	1.270	1.220	1.200	1.180	1.160	1.130				
65	1.270	1.220	1.200	1.180	1.160	1.130				
66	1.270	1.220	1.200	1.180	1.160	1.130				
67	1.270	1.220	1.200	1.180	1.160	1.130				
68	1.270	1.220	1.200	1.180	1.160	1.130				
69	1.270	1.220	1.200	1.180	1.160	1.130				
70	1.270	1.220	1.200	1.180	1.160	1.130				
71	1.270	1.220	1.200	1.180	1.160	1.130				
72	1.270	1.220	1.200	1.180	1.160	1.130				
73	1.270	1.220	1.200	1.180	1.160	1.130				
74	1.270	1.220	1.200	1.180	1.160	1.130				
75	1.270	1.220	1.200	1.180	1.160	1.130				
76	1.270	1.220	1.200	1.180	1.160	1.130				
77	1.270	1.220	1.200	1.180	1.160	1.130				
78	1.270	1.220	1.200	1.180	1.160	1.130				
79	1.270	1.220	1.200	1.180	1.160	1.130				
80	1.270	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.270	1.220	1.200	1.180	1.160	1.130				
82	1.270	1.220	1.200	1.180	1.160	1.130				
83	1.270	1.220	1.200	1.180	1.160	1.130				
84	1.270	1.220	1.200	1.180	1.160	1.130				
85	1.270	1.220	1.200	1.180	1.160	1.130				
86	1.270	1.220	1.200	1.180	1.160	1.130				
87	1.270	1.220	1.200	1.180	1.160	1.130				
88	1.270	1.220	1.200	1.180	1.160	1.130				
89	1.270	1.220	1.200	1.180	1.160	1.130				
90	1.270	1.220	1.200	1.180	1.160	1.130				
91	1.270	1.220	1.200	1.180	1.160	1.130				
92	1.270	1.220	1.200	1.180	1.160	1.130				
93	1.270	1.220	1.200	1.180	1.160	1.130				
94	1.270	1.220	1.200	1.180	1.160	1.130				
95	1.270	1.220	1.200	1.180	1.160	1.130				
96	1.270	1.220	1.200	1.180	1.160	1.130				
97	1.270	1.220	1.200	1.180	1.160	1.130				
98	1.270	1.220	1.200	1.180	1.160	1.130				
99	1.270	1.220	1.200	1.180	1.160	1.130				
100	1.270	1.220	1.200	1.180	1.160	1.130				
101	1.260	1.220	1.200	1.180	1.160	1.130				
102	1.260	1.220	1.200	1.180	1.160	1.130				
103	1.260	1.220	1.200	1.180	1.160	1.130				
104	1.260	1.220	1.200	1.180	1.160	1.130				
105	1.260	1.220	1.200	1.180	1.160	1.130				
106	1.260	1.220	1.200	1.180	1.160	1.130				
107	1.260	1.220	1.200	1.180	1.160	1.130				
108	1.260	1.220	1.200	1.180	1.160	1.130				
109	1.260	1.220	1.200	1.180	1.160	1.130				
110	1.260	1.220	1.200	1.180	1.160	1.130				
111	1.260	1.220	1.200	1.180	1.160	1.130				
112	1.260	1.220	1.200	1.180	1.160	1.130				
113	1.260	1.220	1.200	1.180	1.160	1.130				
114	1.260	1.220	1.200	1.180	1.160	1.130				
115	1.260	1.220	1.200	1.180	1.160	1.130				
116	1.260	1.220	1.200	1.180	1.160	1.130				
117	1.260	1.220	1.200	1.180	1.160	1.130				
118	1.260	1.220	1.200	1.180	1.160	1.130				
119	1.260	1.220	1.200	1.180	1.160	1.130				
120	1.260	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	1.260	1.220	1.200	1.180	1.160	1.130				
122	1.260	1.220	1.200	1.180	1.160	1.130				
123	1.260	1.220	1.200	1.180	1.160	1.130				
124	1.260	1.220	1.200	1.180	1.160	1.130				
125	1.260	1.220	1.200	1.180	1.160	1.130				
126	1.260	1.220	1.200	1.180	1.160	1.130				
127	1.260	1.220	1.200	1.180	1.160	1.130				
128	1.260	1.220	1.200	1.180	1.160	1.130				
129	1.260	1.220	1.200	1.180	1.160	1.130				
130	1.260	1.220	1.200	1.180	1.160	1.130				
131	1.260	1.220	1.200	1.180	1.160	1.130				
132	1.260	1.220	1.200	1.180	1.160	1.130				
133	1.260	1.220	1.200	1.180	1.160	1.130				
134	1.260	1.220	1.200	1.180	1.160	1.130				
135	1.260	1.220	1.200	1.180	1.160	1.130				
136	1.260	1.220	1.200	1.180	1.160	1.130				
137	1.260	1.220	1.200	1.180	1.160	1.130				
138	1.260	1.220	1.200	1.180	1.160	1.130				
139	1.260	1.220	1.200	1.180	1.160	1.130				
140	1.260	1.220	1.200	1.180	1.160	1.130				
141	1.260	1.220	1.200	1.180	1.160	1.130				
142	1.260	1.220	1.200	1.180	1.160	1.130				
143	1.260	1.220	1.200	1.180	1.160	1.130				
144	1.260	1.220	1.200	1.180	1.160	1.130				
145	1.260	1.220	1.200	1.180	1.160	1.130				
146	1.260	1.220	1.200	1.180	1.160	1.130				
147	1.260	1.220	1.200	1.180	1.160	1.130				
148	1.260	1.220	1.200	1.180	1.160	1.130				
149	1.260	1.220	1.200	1.180	1.160	1.130				
150	1.260	1.220	1.200	1.180	1.160	1.130				
151	1.260	1.220	1.200	1.180	1.160	1.130				
152	1.260	1.220	1.200	1.180	1.160	1.130				
153	1.260	1.220	1.200	1.180	1.160	1.130				
154	1.260	1.220	1.200	1.180	1.160	1.130				
155	1.260	1.220	1.200	1.180	1.160	1.130				
156	1.260	1.220	1.200	1.180	1.160	1.130				
157	1.260	1.220	1.200	1.180	1.160	1.130				
158	1.260	1.220	1.200	1.180	1.160	1.130				
159	1.260	1.220	1.200	1.180	1.160	1.130				
160	1.260	1.220	1.200	1.180	1.160	1.130				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS A	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	1.260	1.220	1.200	1.180	1.160	1.130				
162	1.260	1.220	1.200	1.180	1.160	1.130				
163	1.260	1.220	1.200	1.180	1.160	1.130				
164	1.260	1.220	1.200	1.180	1.160	1.130				
165	1.260	1.220	1.200	1.180	1.160	1.130				
166	1.260	1.220	1.200	1.180	1.160	1.130				
167										
168										
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GUTOR	SITE ACCEPTANCE TEST COVER SHEET

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	Schneider Electric Egypt
Street:	Agrood 30	Street:	
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	Mahmoud.Reda@se.com
Date:	10/04/2021		

Project Name: 400VAC UPS for Crude Oil Tank Farm Project

GUTOR System Type: PDW3060-220/400-EAN-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑	GB-10: DC Alarm Test Sheet	☐
GB-2: General & Punch List	☑	GB-11: UPS Function Test Sheet	☑
GB-3: Installation check	☑	GB-12: DC Function Test Sheet	☐
GB-4: Rectifier test sheet	☑	GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☑	GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐	GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☑	GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑	GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☑	GB-18: Costumer Specific Test	☐

Total pages:

Performed by:	Whitnessed by:	Accepted by:
GUTOR Electronic LLC	**ENPPI**	**PPC**
Print: Alexander Ukhalov	Print: Ahmed Abdeen	Print: Mahmoud Ibrahim
Sign:	Sign:	Sign: ....
Date 2021-04-10	Date 2021-04-10	Date 2021-04-10

Q490 033 GB-1	Observe Safety Precautions	UPS B

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Inverter Test	☑	☐	☐
Bypass Test	☐	☐	☑
Bypass Stabilizer Test	☑	☐	☐
Option Test	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☑

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	

Firmware Version:
ML Version 4.02 CL Version 4.03
MPU Version 3.03 FPU Version 3.01

Punchlist The following outstanding items have to be corrected:

by GUTOR:
Found the ISO Driver Board in PM A032 defective. The ISO Driver Board has taken from other project. New Board OP0396AB-002 will be send out to Client asap.

...

by Customer:
...
...
...
...
...

GUTOR	INSTALLATIONS CHECKS

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	1.10.2021
VDC	Fluke 187	20516	1.10.2021
AAC	HIOKI	20515	1.10.2021
ADC	HIOKI	20515	1.10.2021
SCOPE	Fluke 123	20519	1.10.2021

General IEC 62040-3 6.6.1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes:

Mechanical Checks IEC 62040-3 6.6 1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / <u>temporary</u>)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	250 A
Permanent Upstream Fuses / Breaker rating	☑	☐	250 A

Notes: ...

GUTOR

RECTIFIER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests

IEC 62040-3 6.3 2 / IEC 60146-2 7.3.17

		Set Value	Actual Value
Input Voltage	L1-L2	400 VAC	400 VAC
	L2-L3	400 VAC	399 VAC
	L1-L3	400 VAC	401 VAC
	L1 - N	230 VAC	230 VAC
	L2 - N	230 VAC	231 VAC
	L3 - N	230 VAC	229 VAC
Phase Rotation clockwise		☑ YES	☐ NO
Frequenzy		50 Hz	50 Hz
Float Charge Voltage		232 VDC	232 VDC
Boost Charge Voltage		241 VDC	241 VDC
Ripple Voltage			0.43 VAC
Ripple Current			4.1 AAC
Total DC Current Limitation		365 ADC	seeFA ADC
Battery Current Limitation		64.5 ADC	64.5 ADC

Notes:

GUTOR

INVERTER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-2 6.4/7.1/7.3

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
DC supply available (permanent / temporary)	☑	☐
Inverter safe for Start up	☑	☐

Electrical Tests

IEC 60146-2 7.3.5.1 IEC 62040-3 6.3.2 / 6.3 6

DC Input Voltage (V)		Load %	AC Output Voltage (V)			Frequency (Hz)
			L1 - N	L2 - N	L3 - N	
-15%	187	0	231.0	231.0	231.0	50.00
Nominal	220	0	231.0	231.0	231.0	50.00
20%	264	0	231.0	231.0	231.0	50.00
Float	232	0	231.0	231.0	231.0	50.00
Boost	241	0	231.0	231.0	231.0	50.00

	Set Value	Actual Value
Low DC warning	181 VDC	181 VDC
Low DC shutdown	158 VDC	158 VDC
High DC warning	282 VDC	282 VDC
High DC Shutdown	302 VDC	seeFA VDC

	OK	Not OK
Load Transfer to Bypass	☑	☐
Load Transfer to Inverter	☑	☐
Transfer Inhibition	☑	☐

	Yes	No
Output neutral connected to earth. Required ?	☑	☐

Notes: ...

GUTOR	BYPASS TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value	Actual Value
Input Voltage	L1-L2	400 VAC	VAC
	L2-L3	400 VAC	VAC
	L1-L3	400 VAC	VAC
	L1 - N	230 VAC	VAC
	L2 - N	230 VAC	VAC
	L3 - N	230 VAC	VAC
Phase Rotation clockwise		☑ YES	☐ NO
Frequenzy		50 Hz	- Hz
Input Current	L1		AAC
	L2		AAC
	L3		AAC
Output Voltage	L1-L2	400 VAC	VAC
	L2-L3	400 VAC	VAC
	L1-L3	400 VAC	VAC
	L1 - N	230 VAC	VAC
	L2 - N	230 VAC	VAC
	L3 - N	230 VAC	VAC

Notes: ...

BYPASS STABILIZER TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General

IEC 60146-1-1 3 11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Bypass safe for Start up	☑	☐

Electrical Tests

IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value	Actual Value
Input Voltage	L1-L2	VAC	402 VAC
	L2-L3	VAC	401 VAC
	L1-L3	VAC	401 VAC
	L1 - N	VAC	231 VAC
	L2 - N	VAC	231 VAC
	L3 - N	VAC	231 VAC
Phase Rotation clockwise		☑ YES	☐ NO
Frequenzy		Hz	50 Hz
Input Current	L1	-	AAC
	L2		AAC
	L3		AAC
Output Voltage	L1-L2	VAC	400 VAC
	L2-L3	VAC	399 VAC
	L1-L3	VAC	399 VAC
	L1 - N	VAC	230 VAC
	L2 - N	VAC	230 VAC
	L3 - N	VAC	230 VAC

	OK	Not OK
Control circuit of stabilizer tested	☑	☐
External fine tuning tested	☐	☐

Notes: ...

GUTOR	OPTION TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-3 6.3.1 / 6.6.4

		OK	Not OK	N/A
P032	AC Input Voltage (door)	☑	☐	☐
P031	AC Input Current (door)	☑	☐	☐
P033	AC Input Frequency (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery voltage (door)	☑	☐	☐
P026	Battery Current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P092	Bypass Input Voltage (door)	☑	☐	☐
P091	Bypass Input Current (door)	☑	☐	☐
P093	Bypass Input Frequency (door)	☑	☐	☐
S091	Bypass Phase Selector Switch (door)	☑	☐	☐
H91-H96	Control Lighting (door)	☑	☐	
S200	Push Button Lamp Test (door)	☑	☐	☐
P102	Distribution Input Voltage (door)	☑	☐	☐
P101	Distribution Input Current (door)	☑	☐	☐
P103	Distribution Input Frequency (door)	☑	☐	☐
S101	Distribution Phase Selector Switch (door)	☑	☐	
H101A-H110A	DC Distribution Panel	☑	☐	☐
S300		☑	☐	☐
...	Battery Temperature Alarm	☑	☐	☐
...	Battery Temp. Compensation	☑	☐	☐
	Battery Monitoring System	☑	☐	
X062	Blocking of Boost Charge	☑	☐	☐
X063	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay Set Point 170V	☑	☐	☐
...	...	☐	☐	☐
Q100-Q110	Rating Distribution Breakers	☑	☐	☐
Q101-Q110	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus Analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry Contact	☑	☐	☐
E800-E810	Space Heater	☑	☐	☐
E080-E090	Panel Light	☑	☐	☐
P203	Battery Current (MCB Box)	☑	☐	☐
H205A-H205B	Control Lighting (MCB Box)	☑	☐	☐
		☐	☐	☐
Note:		☐	☐	☐

Alarms

IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED's illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board
Rectifier mains fault	☑	☐	A077-K1
Rectifier failure	☑	☐	A078-K9
DC out of tolerance	☑	☐	A077-K2
	☐	☐	
Battery operation	☑	☐	A078-K8 / A025-X008
Battery discharged	☑	☐	A077-K4
Battery disconnected	☑	☐	A078-K7
DC Earth fault	☑	☐	A077-K5
Inverter fault	☑	☐	A078-K6
Overload inv./ bypass	☑	☐	A078-K5 see FAT
Inverter fuse blown	☑	☐	A077-K6
Asynchronous	☑	☐	A078-K4
Bypass mains fault	☑	☐	A077-K7
Manual bypass on	☑	☐	A078-K3
EN inhibited	☑	☐	A078-K2
EA inhibited	☑	☐	A078-K1
Paral. Cable interrupted	☑	☐	
Overtemperature	☑	☐	A077-K8
Fan failure	☑	☐	A077-K9
Power supply fault	☑	☐	A077-K10

Option Alarms

	OK	N/A	Relay Board
EA On	☑	☐	
EN On	☑	☐	
Inverter On	☑	☐	
Boost Charge On	☑	☐	
Rectifier On	☑	☐	
Mains Breaker On	☑	☐	
Mains Breaker Off	☑	☐	
Battery Breaker On	☑	☐	
Battery Breaker Off	☑	☐	
AC Dist. breaker tripped	☑	☐	
Bypass Breaker On	☑	☐	
Bypass Breaker Off	☑	☐	
Q100 On	☑	☐	
Q100 Off	☑	☐	
Common alarm	☑	☐	A025-X001

UPS FUNCTION TEST

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition : UPS is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Open Battery breaker or fuses. System goes to Bypass Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Close Battery breaker or fuses.
- Set System to static bypass on the frontpanel, check green indicatior LED for EN and Display shows Bypass Operation
- Turn Manual Bypass switch to pos. Test. LED "Manual Bypass on" blinked
- Set off the System. Measure output voltage in distribution.
- Set on the System and set System to static bypass on the frontpanel, Display shows Bypass operation
- Turn Manual Bypass switch to pos. Auto.
- Change System back to normal operation on the frontpanel.
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name:	MB645P
Battery Manufacturer:	ALCAD
Battery Type:	Ni-Cd
Capacity:	260 Ah / 5 hrs
No. of cells:	166
Autonomy:	30 min at load 50kVA ambient temperature 40°C
Manufacturer date:	July 2020
Battery Open Voltage	228 VDC (after recharging)

Notes:

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Functional Test IEC 62040-3 6.3.6 / 6.6.4 / 6.6.9

Condition: The following table show the behavier of both UPS Systems
if the Outputs connected together and the systems operate redun

1. Mains off on UPS 1.
   UPS 2 takes the complete load
   UPS 1 goes in HOT STANDBY
2. Mins off on UPS 2
   Both Systems go in Battery Operation
3. Battery UPS 1 off
   UPS 2 overtakes the complete load in Battery Operation
4. Battery UPS 2 off
   Both systems go in Bypass Operation
5. Mains UPS 1 comes back
   UPS1 goes in Normal Operation and overtakes the complete load
   UPS 2 goes in HOT STANDBY
6. Mains UPS 2 comes back
   Both systems go in Normal Operation with load sharing

1. Mains off on UPS 2
   UPS 1 takes the complete load
   UPS 2 goes in HOT STANDBY
2. Mains off on UPS 1
   Both Systems go in Battery Operation
3. Battery UPS 2 off
   UPS 1 overtakesthe complete load in Battery Operation
4. Battery UPS 1 off
   Both systems go in Bypass Operation
5. Mains UPS 2 comes back
   UPS 2 goes in Normal Operation and overtakes the complete load
   UPS 1 goes in HOT STANDBY
6. Mains UPS 1 comes back
   Both systems go in Normal Operation with load sharing

1. Set UPS 1 in Bypass Operation over the display. UPS 2 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 2 (not possible)
3. Switch off Bypass operation on UPS 1. UPS 2 goes to Normal Operation too

1. Set UPS 2 in Bypass Operation over the display. UPS 1 goes to Bypass Operation too
2. Try to switch off Bypass operation on UPS 1 (not possible)
3. Switch off Bypass operation on UPS 2. UPS 1 goes to Normal Operation too

Reset alarms

Test performed successfully? ☑ YES ☑ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO

Dual operation test performed successfully? ☐ YES ☐ NO ☑ N/A

GUTOR

BATTERY INITAL CHARGE RECORD

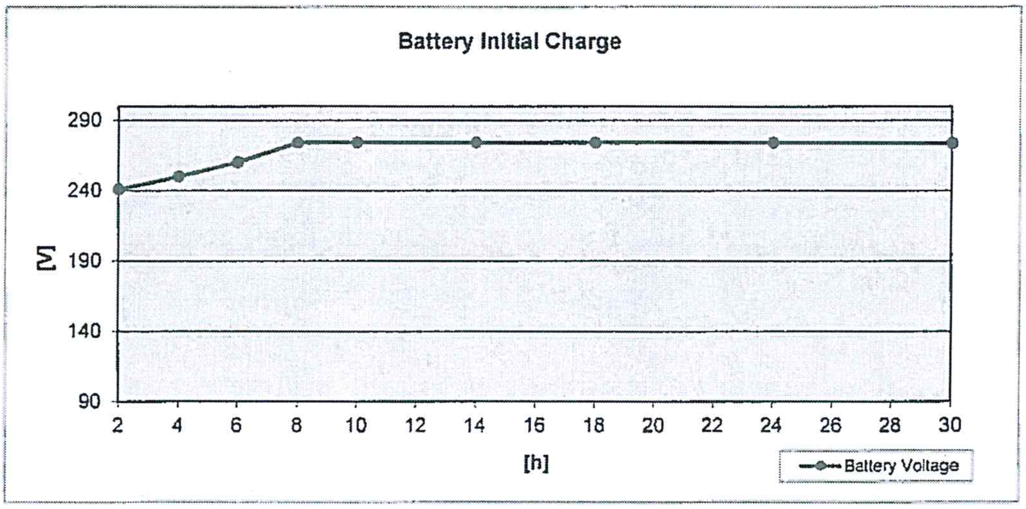
GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Charge start time:	08/00 h	Battery Type:	Ni-Cd
Charge start date:	08/04/2021	Manufacturer:	ALCAD
Room start temp:	26°C	Final Batt. Voltage:	273.6V
		Battery Name :	MB645P

IEC 62040-3 6 2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	82.67	0	27	26
10:00	2.00	240.97	129	27	26
12:00	4.00	249.99	129	28	27
14:00	6.00	260.15	129	28	27
16:00	8.00	274.11	95	28	27
18:00	10.00	274.19	61	29	27
22:00	14.00	274.2	62	29	27
02:00	18.00	274.11	68	30	28
08:00	24.00	274.08	75	31	29
14:00	30.00	273.64	80	33	32

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR	BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	0.510	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.660	1.650
2	0.500	1.450	1.520	1.550	1.650	1.650	1.650	1.650	1.650	1.650
3	0.500	1.450	1.490	1.560	1.660	1.650	1.650	1.650	1.650	1.650
4	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.650	1.650
5	0.490	1.460	1.500	1.550	1.650	1.650	1.650	1.650	1.650	1.650
6	0.480	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
7	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
8	0.500	1.450	1.500	1.540	1.650	1.650	1.650	1.650	1.650	1.650
9	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
10	0.510	1.450	1.500	1.540	1.650	1.660	1.660	1.650	1.650	1.650
11	0.510	1.450	1.500	1.560	1.640	1.650	1.650	1.660	1.650	1.650
12	0.500	1.450	1.520	1.560	1.660	1.660	1.650	1.650	1.660	1.650
13	0.500	1.450	1.500	1.550	1.660	1.660	1.660	1.650	1.650	1.650
14	0.500	1.460	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
15	0.490	1.460	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.650
16	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.650	1.660	1.650
17	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
18	0.510	1.450	1.490	1.560	1.650	1.650	1.660	1.650	1.650	1.650
19	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
20	0.500	1.450	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.650
21	0.490	1.450	1.490	1.570	1.660	1.660	1.650	1.650	1.650	1.650
22	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
23	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
24	0.510	1.450	1.500	1.560	1.650	1.660	1.650	1.650	1.650	1.650
25	0.510	1.450	1.490	1.550	1.650	1.660	1.650	1.650	1.650	1.650
26	0.500	1.460	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.650
27	0.480	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
28	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
29	0.490	1.450	1.520	1.540	1.660	1.650	1.650	1.650	1.650	1.650
30	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.660
31	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
32	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.650	1.650	1.650
33	0.500	1.450	1.490	1.550	1.660	1.650	1.650	1.650	1.650	1.650
34	0.510	1.450	1.490	1.560	1.650	1.660	1.650	1.650	1.650	1.650
35	0.500	1.450	1.500	1.550	1.650	1.650	1.650	1.660	1.660	1.650
36	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.650	1.650
37	0.500	1.450	1.500	1.550	1.650	1.650	1.660	1.660	1.660	1.660
38	0.500	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.660	1.650
39	0.510	1.450	1.490	1.550	1.650	1.660	1.660	1.660	1.660	1.660
40	0.500	1.450	1.500	1.550	1.650	1.650	1.660	1.660	1.660	1.650

GUTOR — BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	0.500	1.450	1.500	1.560	1.650	1.650	1.660	1.660	1.660	1.650
42	0.500	1.460	1.520	1.550	1.650	1.650	1.650	1.650	1.660	1.650
43	0.490	1.450	1.500	1.550	1.640	1.650	1.650	1.650	1.660	1.650
44	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
45	0.490	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
46	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
47	0.500	1.450	1.500	1.560	1.660	1.650	1.650	1.650	1.650	1.650
48	0.500	1.450	1.520	1.550	1.650	1.650	1.650	1.650	1.650	1.650
49	0.510	1.460	1.520	1.570	1.640	1.650	1.650	1.650	1.650	1.650
50	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
51	0.490	1.450	1.490	1.550	1.650	1.650	1.650	1.660	1.660	1.650
52	0.500	1.450	1.490	1.550	1.660	1.650	1.640	1.650	1.650	1.650
53	0.500	1.460	1.500	1.540	1.650	1.650	1.640	1.650	1.650	1.660
54	0.510	1.450	1.510	1.560	1.660	1.660	1.650	1.650	1.650	1.640
55	0.500	1.450	1.500	1.540	1.650	1.640	1.650	1.650	1.650	1.650
56	0.480	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
57	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.640
58	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.640	1.640	1.640
59	0.490	1.450	1.510	1.570	1.660	1.650	1.650	1.650	1.660	1.650
60	0.490	1.450	1.490	1.560	1.650	1.650	1.650	1.650	1.650	1.650
61	0.480	1.450	1.500	1.550	1.650	1.650	1.650	1.640	1.640	1.640
62	0.500	1.450	1.510	1.570	1.660	1.650	1.650	1.650	1.650	1.650
63	0.510	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
64	0.500	1.450	1.510	1.560	1.660	1.660	1.650	1.650	1.650	1.650
65	0.500	1.450	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.650
66	0.500	1.450	1.500	1.560	1.650	1.660	1.640	1.650	1.650	1.640
67	0.490	1.460	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
68	0.510	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
69	0.510	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
70	0.510	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
71	0.500	1.450	1.520	1.570	1.650	1.650	1.660	1.650	1.650	1.640
72	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
73	0.480	1.460	1.520	1.560	1.660	1.650	1.650	1.650	1.650	1.650
74	0.480	1.450	1.510	1.570	1.650	1.650	1.650	1.660	1.660	1.650
75	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
76	0.500	1.450	1.510	1.580	1.650	1.650	1.660	1.650	1.650	1.650
77	0.500	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
78	0.480	1.450	1.510	1.560	1.650	1.640	1.650	1.650	1.650	1.650
79	0.500	1.450	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.650
80	0.500	1.460	1.500	1.560	1.650	1.640	1.650	1.650	1.650	1.650

BATTERY INITAL CHARGE RECORD

GUTOR

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	0.500	1.450	1.510	1.560	1.650	1.650	1.660	1.650	1.650	1.650
82	0.510	1.450	1.510	1.580	1.660	1.660	1.650	1.660	1.650	1.650
83	0.510	1.450	1.510	1.580	1.660	1.660	1.660	1.660	1.660	1.650
84	0.510	1.450	1.510	1.570	1.640	1.650	1.650	1.640	1.640	1.640
85	0.510	1.450	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.640
86	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.650	1.640	1.640
87	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.640
88	0.480	1.450	1.510	1.580	1.650	1.660	1.650	1.640	1.640	1.640
89	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.640	1.640
90	0.500	1.450	1.510	1.610	1.660	1.650	1.650	1.650	1.650	1.650
91	0.510	1.450	1.510	1.610	1.650	1.650	1.650	1.650	1.650	1.650
92	0.500	1.450	1.500	1.570	1.650	1.650	1.640	1.640	1.640	1.640
93	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
94	0.500	1.450	1.520	1.560	1.660	1.660	1.660	1.660	1.660	1.650
95	0.500	1.460	1.520	1.560	1.660	1.660	1.650	1.660	1.660	1.660
96	0.490	1.460	1.510	1.560	1.650	1.650	1.660	1.660	1.660	1.650
97	0.500	1.450	1.510	1.570	1.660	1.660	1.660	1.650	1.660	1.650
98	0.500	1.460	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.650
99	0.480	1.460	1.510	1.570	1.650	1.650	1.650	1.660	1.660	1.660
100	0.500	1.460	1.520	1.570	1.650	1.650	1.660	1.660	1.660	1.650
101	0.500	1.460	1.520	1.590	1.660	1.650	1.660	1.660	1.660	1.650
102	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
103	0.500	1.450	1.510	1.580	1.660	1.650	1.660	1.660	1.660	1.650
104	0.500	1.450	1.490	1.560	1.650	1.650	1.650	1.640	1.640	1.640
105	0.500	1.450	1.520	1.580	1.650	1.650	1.660	1.650	1.660	1.650
106	0.490	1.450	1.490	1.560	1.650	1.650	1.650	1.660	1.640	1.640
107	0.500	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.640
108	0.500	1.450	1.510	1.610	1.650	1.650	1.660	1.640	1.640	1.640
109	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
110	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
111	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
112	0.490	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.650
113	0.490	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
114	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.640
115	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
116	0.490	1.450	1.510	1.560	1.640	1.650	1.650	1.650	1.650	1.650
117	0.490	1.450	1.500	1.560	1.640	1.650	1.650	1.650	1.650	1.640
118	0.490	1.450	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
119	0.490	1.450	1.520	1.560	1.640	1.640	1.650	1.650	1.640	1.640
120	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.640	1.650	1.640

GUTOR	BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	0.500	1.450	1.500	1.560	1.660	1.660	1.660	1.650	1.650	1.640
122	0.510	1.450	1.500	1.580	1.650	1.650	1.660	1.650	1.650	1.640
123	0.510	1.460	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.650
124	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.660	1.650	1.650
125	0.500	1.450	1.510	1.570	1.650	1.660	1.660	1.660	1.660	1.650
126	0.480	1.450	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.660
127	0.500	1.450	1.500	1.560	1.650	1.650	1.650	1.650	1.650	1.650
128	0.490	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
129	0.500	1.450	1.510	1.570	1.650	1.660	1.650	1.650	1.650	1.650
130	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.650
131	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.660	1.660	1.650
132	0.480	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.640
133	0.500	1.450	1.500	1.570	1.650	1.660	1.650	1.640	1.640	1.650
134	0.500	1.450	1.500	1.570	1.650	1.650	1.650	1.650	1.640	1.640
135	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
136	0.490	1.450	1.510	1.560	1.650	1.650	1.650	1.650	1.650	1.640
137	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
138	0.500	1.450	1.510	1.570	1.650	1.650	1.660	1.650	1.650	1.650
139	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
140	0.500	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.640
141	0.500	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
142	0.490	1.450	1.520	1.590	1.650	1.660	1.650	1.650	1.650	1.650
143	0.500	1.450	1.520	1.580	1.650	1.650	1.650	1.650	1.650	1.650
144	0.500	1.460	1.520	1.580	1.650	1.650	1.650	1.650	1.640	1.650
145	0.500	1.450	1.520	1.600	1.650	1.650	1.650	1.650	1.650	1.650
146	0.500	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
147	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.650
148	0.500	1.460	1.510	1.570	1.650	1.650	1.650	1.650	1.650	1.640
149	0.500	1.450	1.510	1.590	1.650	1.660	1.650	1.650	1.650	1.650
150	0.500	1.460	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.640
151	0.490	1.450	1.510	1.590	1.650	1.650	1.660	1.650	1.650	1.650
152	0.490	1.450	1.500	1.580	1.650	1.650	1.650	1.650	1.650	1.650
153	0.500	1.450	1.510	1.590	1.640	1.640	1.660	1.650	1.650	1.650
154	0.500	1.450	1.510	1.570	1.660	1.660	1.650	1.650	1.650	1.640
155	0.510	1.450	1.510	1.580	1.650	1.650	1.650	1.650	1.650	1.650
156	0.500	1.460	1.520	1.580	1.660	1.650	1.650	1.650	1.650	1.650
157	0.480	1.450	1.510	1.590	1.650	1.660	1.660	1.650	1.650	1.640
158	0.500	1.460	1.510	1.580	1.650	1.650	1.660	1.660	1.660	1.650
159	0.490	1.450	1.510	1.590	1.650	1.650	1.650	1.650	1.650	1.650
160	0.490	1.450	1.510	1.580	1.660	1.650	1.660	1.660	1.660	1.650

GUTOR BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	0.500	1.450	1.520	1.560	1.650	1.650	1.650	1.650	1.650	1.650
162	0.500	1.460	1.510	1.570	1.660	1.660	1.660	1.660	1.660	1.650
163	0.500	1.460	1.510	1.590	1.650	1.650	1.650	1.640	1.650	1.650
164	0.510	1.450	1.520	1.590	1.650	1.650	1.650	1.640	1.650	1.650
165	0.500	1.460	1.510	1.590	1.650	1.660	1.650	1.660	1.660	1.650
166	0.500	1.450	1.510	1.590	1.650	1.650	1.660	1.660	1.650	1.650
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GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

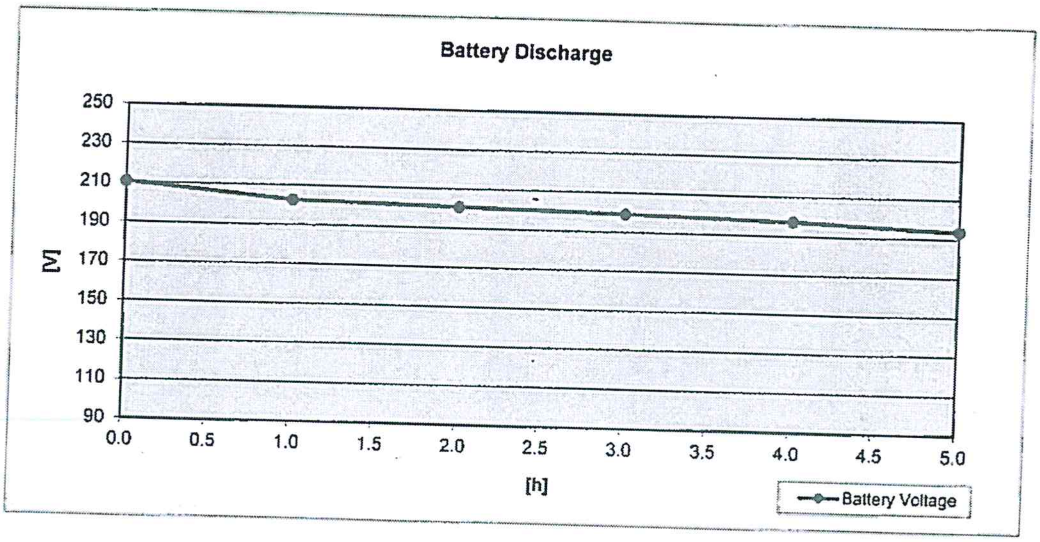
Discharge start time: 08/00 h
Discharge start date: 09/04/2021
Room start temp: 22°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage:
Battery Name: MB645P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	210.49	133	23	22
08:00	1.00	202.52	133	23	22
09:00	2.00	200.86	131.7	24	22
10:00	3.00	199.2	130.6	26	23
11:00	4.00	197.37	129.2	27	23
12:00	5.00	193.68	128.3	27	25
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage	≥	1	VDC	☑ YES	☐ NO
Battery string Tested successfully	≥	166	VDC	☑ YES	☐ NO

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.290	1.220	1.210	1.200	1.190	1.170				
2	1.290	1.220	1.210	1.200	1.190	1.170				
3	1.290	1.220	1.210	1.200	1.190	1.170				
4	1.290	1.220	1.210	1.200	1.190	1.170				
5	1.280	1.220	1.210	1.200	1.190	1.170				
6	1.280	1.220	1.210	1.200	1.190	1.170				
7	1.280	1.220	1.210	1.200	1.190	1.170				
8	1.280	1.220	1.210	1.200	1.190	1.170				
9	1.280	1.220	1.210	1.200	1.190	1.170				
10	1.280	1.220	1.210	1.200	1.190	1.170				
11	1.280	1.220	1.210	1.200	1.190	1.170				
12	1.280	1.220	1.210	1.200	1.190	1.170				
13	1.280	1.220	1.210	1.200	1.190	1.170				
14	1.280	1.220	1.210	1.200	1.190	1.170				
15	1.280	1.220	1.210	1.200	1.190	1.170				
16	1.280	1.220	1.210	1.200	1.190	1.170				
17	1.280	1.220	1.210	1.200	1.190	1.170				
18	1.280	1.220	1.210	1.200	1.190	1.170				
19	1.280	1.220	1.210	1.200	1.190	1.170				
20	1.280	1.220	1.210	1.200	1.190	1.170				
21	1.280	1.220	1.210	1.200	1.190	1.170				
22	1.280	1.220	1.210	1.200	1.190	1.170				
23	1.280	1.220	1.210	1.200	1.190	1.170				
24	1.280	1.220	1.210	1.200	1.190	1.170				
25	1.280	1.220	1.210	1.200	1.190	1.170				
26	1.280	1.220	1.210	1.200	1.190	1.170				
27	1.280	1.220	1.210	1.200	1.190	1.170				
28	1.280	1.220	1.210	1.200	1.190	1.170				
29	1.280	1.220	1.210	1.200	1.190	1.170				
30	1.280	1.220	1.210	1.200	1.190	1.170				
31	1.280	1.220	1.210	1.200	1.190	1.170				
32	1.280	1.220	1.210	1.200	1.190	1.170				
33	1.280	1.220	1.210	1.200	1.190	1.170				
34	1.280	1.220	1.210	1.200	1.190	1.170				
35	1.280	1.220	1.210	1.200	1.190	1.170				
36	1.280	1.220	1.210	1.200	1.190	1.170				
37	1.280	1.220	1.210	1.200	1.190	1.170				
38	1.280	1.220	1.210	1.200	1.190	1.170				
39	1.280	1.220	1.210	1.200	1.190	1.170				
40	1.280	1.220	1.210	1.200	1.190	1.170				

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.280	1.220	1.210	1.200	1.190	1.170				
42	1.280	1.220	1.210	1.200	1.190	1.170				
43	1.280	1.220	1.210	1.200	1.190	1.170				
44	1.280	1.220	1.210	1.200	1.190	1.170				
45	1.280	1.220	1.210	1.200	1.190	1.170				
46	1.270	1.220	1.210	1.200	1.190	1.170				
47	1.270	1.220	1.210	1.200	1.190	1.170				
48	1.270	1.220	1.210	1.200	1.190	1.170				
49	1.270	1.220	1.210	1.200	1.190	1.170				
50	1.270	1.220	1.210	1.200	1.190	1.170				
51	1.270	1.220	1.210	1.200	1.190	1.170				
52	1.270	1.220	1.210	1.200	1.190	1.170				
53	1.270	1.220	1.210	1.200	1.190	1.170				
54	1.270	1.220	1.210	1.200	1.190	1.170				
55	1.270	1.220	1.210	1.200	1.190	1.170				
56	1.270	1.220	1.210	1.200	1.190	1.170				
57	1.270	1.220	1.210	1.200	1.190	1.170				
58	1.270	1.220	1.210	1.200	1.190	1.170				
59	1.270	1.220	1.210	1.200	1.190	1.170				
60	1.270	1.220	1.210	1.200	1.190	1.170				
61	1.270	1.220	1.210	1.200	1.190	1.170				
62	1.270	1.220	1.210	1.200	1.190	1.170				
63	1.270	1.220	1.210	1.200	1.190	1.170				
64	1.270	1.220	1.210	1.200	1.190	1.170				
65	1.270	1.220	1.210	1.200	1.190	1.170				
66	1.270	1.220	1.210	1.200	1.190	1.170				
67	1.270	1.220	1.210	1.200	1.190	1.170				
68	1.270	1.220	1.210	1.200	1.190	1.170				
69	1.270	1.220	1.210	1.200	1.190	1.170				
70	1.270	1.220	1.210	1.200	1.190	1.170				
71	1.270	1.220	1.210	1.200	1.190	1.170				
72	1.270	1.220	1.210	1.200	1.190	1.170				
73	1.270	1.220	1.210	1.200	1.190	1.170				
74	1.270	1.220	1.210	1.200	1.190	1.170				
75	1.270	1.220	1.210	1.200	1.190	1.170				
76	1.270	1.220	1.210	1.200	1.190	1.170				
77	1.270	1.220	1.210	1.200	1.190	1.170				
78	1.270	1.220	1.210	1.200	1.190	1.170				
79	1.270	1.220	1.210	1.200	1.190	1.170				
80	1.270	1.220	1.210	1.200	1.190	1.170				

GUTOR — BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.270	1.220	1.210	1.200	1.190	1.170				
82	1.270	1.220	1.210	1.200	1.190	1.170				
83	1.270	1.220	1.210	1.200	1.190	1.170				
84	1.270	1.220	1.210	1.200	1.190	1.170				
85	1.270	1.220	1.210	1.200	1.190	1.170				
86	1.270	1.220	1.210	1.200	1.190	1.170				
87	1.270	1.220	1.210	1.200	1.190	1.170				
88	1.270	1.220	1.210	1.200	1.190	1.170				
89	1.270	1.220	1.210	1.200	1.190	1.170				
90	1.270	1.220	1.210	1.200	1.190	1.170				
91	1.260	1.220	1.210	1.200	1.190	1.170				
92	1.260	1.220	1.210	1.200	1.190	1.160				
93	1.260	1.220	1.210	1.200	1.190	1.160				
94	1.260	1.220	1.210	1.200	1.190	1.170				
95	1.260	1.220	1.210	1.200	1.190	1.160				
96	1.260	1.220	1.210	1.200	1.190	1.160				
97	1.260	1.220	1.210	1.200	1.190	1.160				
98	1.260	1.220	1.210	1.200	1.190	1.170				
99	1.260	1.220	1.210	1.200	1.190	1.160				
100	1.260	1.220	1.210	1.200	1.180	1.170				
101	1.260	1.220	1.210	1.200	1.190	1.160				
102	1.260	1.220	1.210	1.200	1.190	1.170				
103	1.260	1.220	1.210	1.200	1.190	1.160				
104	1.260	1.220	1.210	1.200	1.190	1.160				
105	1.260	1.220	1.210	1.200	1.190	1.160				
106	1.260	1.220	1.210	1.200	1.180	1.160				
107	1.260	1.220	1.210	1.200	1.180	1.170				
108	1.260	1.220	1.210	1.200	1.190	1.160				
109	1.260	1.220	1.210	1.200	1.190	1.160				
110	1.260	1.220	1.210	1.200	1.190	1.160				
111	1.260	1.220	1.210	1.200	1.190	1.160				
112	1.260	1.220	1.210	1.200	1.180	1.160				
113	1.260	1.220	1.210	1.200	1.180	1.160				
114	1.260	1.220	1.210	1.200	1.190	1.160				
115	1.260	1.220	1.210	1.200	1.190	1.160				
116	1.260	1.220	1.210	1.200	1.190	1.160				
117	1.260	1.220	1.210	1.200	1.190	1.160				
118	1.260	1.220	1.210	1.200	1.190	1.160				
119	1.260	1.220	1.210	1.200	1.190	1.160				
120	1.260	1.220	1.210	1.200	1.190	1.160				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
121	1.260	1.220	1.210	1.200	1.190	1.160				
122	1.260	1.220	1.210	1.200	1.190	1.160				
123	1.260	1.220	1.210	1.200	1.190	1.160				
124	1.260	1.220	1.210	1.200	1.190	1.160				
125	1.260	1.220	1.210	1.200	1.190	1.160				
126	1.260	1.220	1.210	1.200	1.180	1.160				
127	1.260	1.220	1.210	1.200	1.180	1.170				
128	1.260	1.220	1.210	1.200	1.180	1.170				
129	1.260	1.220	1.210	1.200	1.190	1.160				
130	1.260	1.220	1.210	1.200	1.180	1.160				
131	1.260	1.220	1.210	1.200	1.180	1.160				
132	1.260	1.220	1.210	1.200	1.180	1.160				
133	1.260	1.220	1.210	1.200	1.190	1.160				
134	1.260	1.220	1.210	1.200	1.190	1.160				
135	1.260	1.220	1.210	1.200	1.190	1.160				
136	1.260	1.220	1.210	1.200	1.190	1.160				
137	1.260	1.220	1.210	1.200	1.190	1.160				
138	1.260	1.220	1.210	1.200	1.190	1.160				
139	1.260	1.220	1.210	1.200	1.190	1.160				
140	1.260	1.220	1.210	1.200	1.190	1.170				
141	1.260	1.220	1.210	1.200	1.180	1.160				
142	1.260	1.220	1.210	1.200	1.180	1.160				
143	1.260	1.220	1.210	1.200	1.180	1.160				
144	1.260	1.220	1.210	1.200	1.190	1.160				
145	1.260	1.220	1.210	1.200	1.190	1.160				
146	1.260	1.220	1.210	1.200	1.180	1.160				
147	1.260	1.220	1.210	1.200	1.190	1.160				
148	1.260	1.220	1.210	1.200	1.180	1.160				
149	1.260	1.220	1.210	1.200	1.190	1.160				
150	1.260	1.220	1.210	1.200	1.190	1.160				
151	1.260	1.220	1.210	1.200	1.190	1.160				
152	1.260	1.220	1.210	1.200	1.190	1.160				
153	1.260	1.220	1.210	1.200	1.190	1.160				
154	1.260	1.220	1.210	1.200	1.190	1.170				
155	1.260	1.220	1.210	1.200	1.190	1.170				
156	1.260	1.220	1.210	1.200	1.190	1.170				
157	1.260	1.220	1.210	1.200	1.180	1.170				
158	1.260	1.220	1.210	1.200	1.190	1.170				
159	1.250	1.220	1.210	1.200	1.190	1.170				
160	1.250	1.220	1.210	1.200	1.190	1.170				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069003 UPS B	Client Tag No.:	030-SUB-ACUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
161	1.250	1.220	1.210	1.200	1.190	1.170				
162	1.250	1.220	1.210	1.200	1.190	1.170				
163	1.250	1.220	1.210	1.200	1.190	1.170				
164	1.250	1.220	1.210	1.200	1.190	1.170				
165	1.260	1.220	1.210	1.200	1.190	1.170				
166	1.260	1.220	1.210	1.200	1.190	1.170				
167										
168										
169										
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198										
199										
200										

GUTOR	SITE ACCEPTANCE TEST COVER SHEET

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	Schneider Electric Egypt
Street:	Agrood 30	Street:	
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	Mahmoud.Reda@se.com
Date:	04/10/2021		

Project Name: 110VDC UPS for Crude Oil Tank Farm Project

GUTOR System Type: SDC110-160-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑	GB-10: DC Alarm Test Sheet	☑
GB-2: General & Punch List	☑	GB-11: UPS Function Test Sheet	☐
GB-3: Installation check	☑	GB-12: DC Function Test Sheet	☑
GB-4: Rectifier test sheet	☑	GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☐	GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐	GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☐	GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑	GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☐	GB-18: Costumer Specific Test	☐

Total pages

Performed by:	Whitnessed by:	Accepted by:
GUTOR Electronic LLC	**ENPPI**	**PPC**
Print: Alexander Ukhalov	Print: Ahmed Nadeem	Print: Mohamed Ibrahim
Sign: [signature]	Sign: [signature]	Sign: [signature]
Date 2021-10-04	Date 2021-10-04	Date 2021-10-04

GUTOR — GENERAL & PUNCH LIST

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Options	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☐

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	
Software copy done (RAM1 and VQs)	☑	☐	

RAM1 Version: ENG/I MPU Version: 18

Punchlist The following outstanding items have to be corrected:

by GUTOR:

...
...
...
...
...

by Customer:

...
...
...
...
...

INSTALLATIONS CHECKS

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	15.10.2021
VDC	Fluke 187	20516	15.10.2021
AAC	HIOKI	20515	15.10.2021
ADC	HIOKI	20515	15.10.2021
SCOPE	Fluke 123	20519	15.10.2021

General

IEC 62040-3 6 6 1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes: ...

Mechanical Checks

IEC 62040-3 6.6.1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / temporary)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	160 A
Permanent Upstream Fuses / Breaker rating	☐	☐	100 A

Notes: ...

RECTIFIER TEST

GUTOR

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

General

IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests

IEC 62040-3 8.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	400	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	229	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Float Charge Voltage		127	VDC	127	VDC
Boost Charge Voltage		132	VDC	132	VDC
Ripple Voltage				0.22	VAC
Ripple Current				3.2	AAC
Low DC Warning		99	VDC	99.2	VDC
Low DC Shutdown		83	VDC	82.9	VDC
High DC Warning		137	VDC	137	VDC
High DC Shutdown		155	VDC	155	VDC
Total DC Current Limitation		160	ADC	seeFAT	ADC
Battery Current Limitation		52	ADC	52	ADC

Notes: ...

Output Voltage no Load	120
Dropper Switch Point	116
Dropper Switch Point return	119

OPTION TEST

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

General IEC 62040-3 6.3.1 / 6.6.4

		OK	Not OK	N/A
P031	AC Input Voltage (door)	☑	☐	☐
P032	AC Input Voltage (door)	☑	☐	☐
P033	AC Input Voltage (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery Voltage (door)	☑	☐	☐
P026	Battery current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P102	Distribution Input Voltage	☑	☐	☐
P101	Distribution Input Current	☑	☐	☐
H100A..H112A	Control Lighting	☑	☐	☐
S300	Push Button Lamp Test	☑	☐	☐
Setting	Battery Temp Alarm	☑	☐	☐
Setting	Battery Temp Compensation	☑	☐	☐
...	Battery Monitoring System	☐	☐	☑
X061	Blocking of Boost Charge	☑	☐	☐
X062	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay SetPoint 94V	☑	☐	☐
V032	Dropper Diode	☑	☐	☐
Q100...Q112	Rating Distribution Breakers	☑	☐	☐
Q101...Q112	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry contact	☑	☐	☐
E800-E806	Space Heater	☑	☐	☐
E080-E086	Panel Light	☑	☐	☐
P203	Battery Current MCCB Box	☑	☐	☐
H205A	Battery Breaker Closed	☑	☐	☐
H205B	Battery Breaker Tripped	☑	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐

DC ALARM TEST

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Alarms IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED`s illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board	
Rectifier mains fault	☑	☐	A077-K1	
Rectifier failure	☑	☐	A078-K9	
DC out of tolerance	☑	☐	A077-K2	
Rectifier fuse blown	☑	☐	A077-K3	
Rectifier overcurrent	☑	☐	A077-K11	see FAT
Battery discharged	☑	☐	A077-K4	
Battery disconnected	☑	☐	A078-K7	
DC Earth fault	☐	☑	A077-K5	
Power supply fault	☑	☐	A077-K10	
Overtemperature	☑	☐	A077-K8	
Fan failure	☑	☐	A077-K9	
Common alarm	☑	☐	A025-X009	
Load Sharing Fault	☑	☐		
Output out of tolerance	☑	☐		
Dist. Breaker Tripped	☑	☐	A077-X013	
Dropper Fan Failure	☑	☐		
Mains Breaker Q001 On	☑	☐		
Mains Breaker Q001 Off	☑	☐		
Rectifier On	☑	☐	A077-X001	
Boost Charge On	☑	☐	A077-X002	
Rectifier Mains Ok	☑	☐		
Output Voltage Ok	☑	☐		
Output Breaker Q003 On	☑	☐		
Output Breaker Q003 Off	☑	☐		

Functional Test IEC 62040-3 6.3.6 / 6.3.4.4

Condition : Charger is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Set off the System. Measure output voltage in distribution.
- Close Battery breaker or fuses.
- Set System on
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

GUTOR

BATTERY TEST

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name: MC260P

Battery Manufacturer: ALCAD

Battery Type: Ni-Cd

Capacity: 260 Ah / 5 hrs

No. of cells: 91

Autonomy: 120 min.at load 85A DC ambient temperature 40°C

Manufacturer date: July 2020

Battery Open Voltage 122 VDC (after recharging)

Notes: ...

GUTOR

BATTERY INITAL CHARGE RECORD

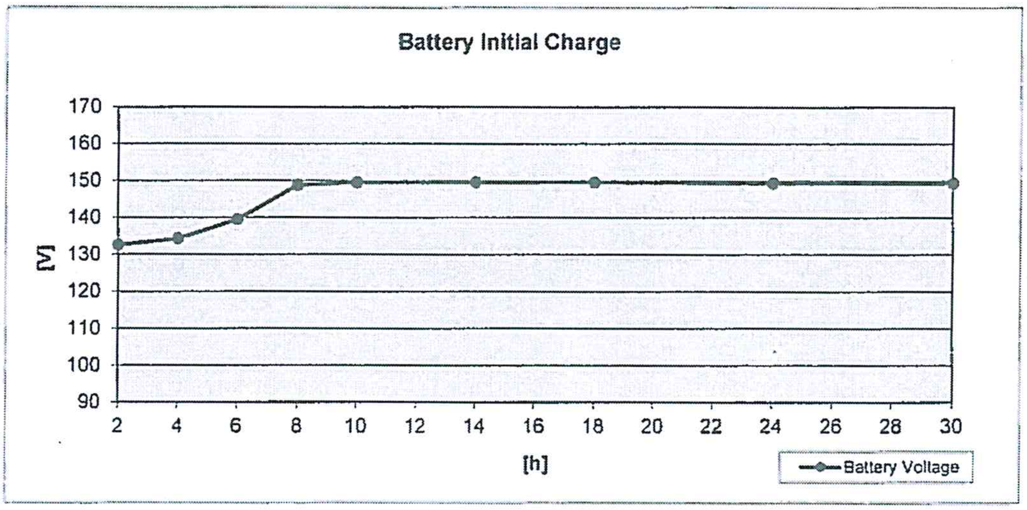
GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Charge start time:	08/00 h	Battery Type:	Ni-Cd
Charge start date:	04/04/2021	Manufacturer:	ALCAD
Room start temp:	19°C	Final Batt. Voltage:	149.32V
		Battery Name :	MC260P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	45.7	0	19	19
10:00	2.00	132.58	53	19	19
12:00	4.00	134.33	53	20	19
14:00	6.00	139.48	52	20	19
16:00	8.00	148.82	51	20	19
18:00	10.00	149.51	43	20	19
22:00	14.00	149.61	20	20	19
02:00	18.00	149.62	16	20	19
08:00	24.00	149.39	15	22	21
14:00	30.00	149.32	19	24	23

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	0.500	1.450	1.470	1.520	1.610	1.650	1.650	1.650	1.650	1.640
2	0.510	1.450	1.470	1.520	1.600	1.640	1.650	1.650	1.640	1.640
3	0.510	1.460	1.470	1.520	1.610	1.640	1.650	1.650	1.650	1.640
4	0.520	1.450	1.470	1.520	1.610	1.640	1.650	1.640	1.640	1.640
5	0.510	1.450	1.470	1.530	1.620	1.650	1.650	1.650	1.640	1.640
6	0.510	1.450	1.480	1.530	1.630	1.650	1.650	1.650	1.650	1.640
7	0.520	1.450	1.470	1.520	1.620	1.640	1.640	1.640	1.640	1.640
8	0.510	1.450	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
9	0.510	1.450	1.470	1.520	1.620	1.640	1.640	1.640	1.640	1.640
10	0.510	1.460	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
11	0.510	1.450	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
12	0.510	1.450	1.470	1.520	1.610	1.640	1.650	1.640	1.640	1.640
13	0.510	1.460	1.470	1.520	1.620	1.640	1.650	1.640	1.640	1.640
14	0.510	1.450	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
15	0.500	1.460	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
16	0.510	1.460	1.480	1.530	1.670	1.640	1.640	1.640	1.640	1.640
17	0.500	1.460	1.480	1.530	1.670	1.640	1.640	1.640	1.640	1.640
18	0.510	1.460	1.480	1.520	1.610	1.640	1.640	1.640	1.640	1.640
19	0.510	1.460	1.470	1.520	1.610	1.640	1.640	1.640	1.640	1.640
20	0.500	1.450	1.470	1.530	1.660	1.640	1.640	1.640	1.640	1.640
21	0.500	1.450	1.470	1.520	1.600	1.640	1.640	1.650	1.640	1.640
22	0.500	1.450	1.470	1.520	1.610	1.640	1.650	1.650	1.640	1.640
23	0.500	1.460	1.470	1.530	1.670	1.640	1.640	1.650	1.640	1.640
24	0.500	1.460	1.480	1.530	1.630	1.650	1.650	1.650	1.640	1.650
25	0.520	1.450	1.480	1.520	1.610	1.640	1.640	1.640	1.640	1.640
26	0.510	1.450	1.470	1.530	1.620	1.640	1.650	1.650	1.650	1.640
27	0.520	1.460	1.470	1.530	1.620	1.640	1.650	1.650	1.650	1.640
28	0.510	1.450	1.480	1.530	1.630	1.650	1.650	1.650	1.650	1.650
29	0.500	1.450	1.480	1.530	1.630	1.650	1.650	1.650	1.640	1.650
30	0.500	1.460	1.480	1.530	1.630	1.650	1.650	1.650	1.640	1.640
31	0.500	1.460	1.470	1.530	1.640	1.650	1.650	1.650	1.650	1.640
32	0.510	1.450	1.470	1.530	1.620	1.640	1.650	1.650	1.640	1.640
33	0.500	1.450	1.480	1.540	1.610	1.650	1.650	1.650	1.650	1.640
34	0.510	1.460	1.470	1.530	1.620	1.640	1.650	1.650	1.650	1.640
35	0.500	1.450	1.470	1.530	1.620	1.650	1.650	1.650	1.650	1.640
36	0.500	1.460	1.470	1.530	1.630	1.640	1.650	1.650	1.650	1.640
37	0.500	1.450	1.470	1.520	1.620	1.640	1.640	1.640	1.640	1.640
38	0.510	1.450	1.470	1.530	1.620	1.650	1.650	1.650	1.640	1.640
39	0.500	1.460	1.470	1.530	1.630	1.640	1.650	1.650	1.640	1.640
40	0.510	1.450	1.470	1.530	1.610	1.640	1.640	1.640	1.640	1.640

GUTOR — BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	0.500	1.460	1.470	1.530	1.640	1.650	1.650	1.650	1.650	1.640
42	0.500	1.450	1.470	1.530	1.630	1.670	1.650	1.650	1.640	1.640
43	0.490	1.450	1.480	1.570	1.640	1.650	1.650	1.650	1.650	1.650
44	0.500	1.450	1.480	1.530	1.640	1.650	1.650	1.650	1.650	1.650
45	0.510	1.450	1.470	1.520	1.610	1.650	1.650	1.650	1.650	1.640
46	0.520	1.460	1.480	1.540	1.670	1.650	1.650	1.650	1.640	1.640
47	0.500	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
48	0.480	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
49	0.510	1.460	1.480	1.530	1.620	1.640	1.650	1.650	1.640	1.640
50	0.500	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
51	0.510	1.460	1.480	1.530	1.620	1.640	1.640	1.640	1.640	1.640
52	0.500	1.460	1.480	1.540	1.670	1.650	1.640	1.640	1.640	1.650
53	0.520	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
54	0.520	1.460	1.490	1.550	1.670	1.650	1.640	1.640	1.640	1.640
55	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
56	0.470	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
57	0.480	1.460	1.480	1.550	1.670	1.640	1.640	1.650	1.640	1.640
58	0.490	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
59	0.480	1.460	1.480	1.550	1.610	1.650	1.640	1.640	1.640	1.640
60	0.480	1.460	1.480	1.550	1.670	1.650	1.640	1.640	1.640	1.650
61	0.480	1.460	1.480	1.550	1.670	1.640	1.640	1.640	1.640	1.640
62	0.500	1.460	1.480	1.540	1.650	1.640	1.640	1.640	1.640	1.640
63	0.480	1.460	1.480	1.550	1.610	1.640	1.640	1.640	1.640	1.640
64	0.500	1.460	1.480	1.520	1.630	1.640	1.640	1.640	1.640	1.640
65	0.490	1.460	1.490	1.550	1.610	1.650	1.640	1.640	1.640	1.640
66	0.500	1.460	1.490	1.550	1.660	1.650	1.640	1.640	1.640	1.640
67	0.480	1.460	1.480	1.550	1.670	1.650	1.650	1.640	1.640	1.650
68	0.490	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
69	0.490	1.460	1.480	1.540	1.610	1.640	1.640	1.650	1.640	1.640
70	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
71	0.510	1.460	1.470	1.530	1.610	1.640	1.640	1.640	1.640	1.640
72	0.500	1.460	1.480	1.540	1.670	1.640	1.640	1.640	1.640	1.640
73	0.500	1.460	1.470	1.530	1.620	1.640	1.640	1.640	1.640	1.640
74	0.500	1.460	1.480	1.530	1.630	1.640	1.640	1.640	1.640	1.640
75	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
76	0.500	1.460	1.480	1.530	1.630	1.640	1.640	1.640	1.640	1.640
77	0.510	1.460	1.480	1.530	1.620	1.640	1.640	1.640	1.640	1.640
78	0.520	1.460	1.480	1.530	1.620	1.640	1.650	1.650	1.640	1.640
79	0.510	1.460	1.480	1.530	1.630	1.640	1.650	1.650	1.640	1.640
80	0.490	1.460	1.480	1.540	1.670	1.640	1.640	1.650	1.640	1.640

Q490.033 GB-13	Observe Safety Precautions	Charger A

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	0.490	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
82	0.500	1.460	1.470	1.540	1.650	1.640	1.640	1.640	1.640	1.640
83	0.490	1.460	1.470	1.540	1.660	1.640	1.640	1.640	1.640	1.640
84	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
85	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
86	0.520	1.460	1.480	1.530	1.620	1.640	1.650	1.650	1.640	1.640
87	0.500	1.460	1.480	1.540	1.660	1.640	1.640	1.640	1.640	1.640
88	0.510	1.460	1.480	1.530	1.610	1.640	1.640	1.640	1.640	1.640
89	0.490	1.460	1.480	1.540	1.660	1.640	1.650	1.650	1.640	1.640
90	0.510	1.460	1.480	1.530	1.630	1.640	1.650	1.650	1.640	1.640
91	0.500	1.460	1.470	1.530	1.630	1.650	1.650	1.650	1.640	1.640
92										
93										
94										
95										
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GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

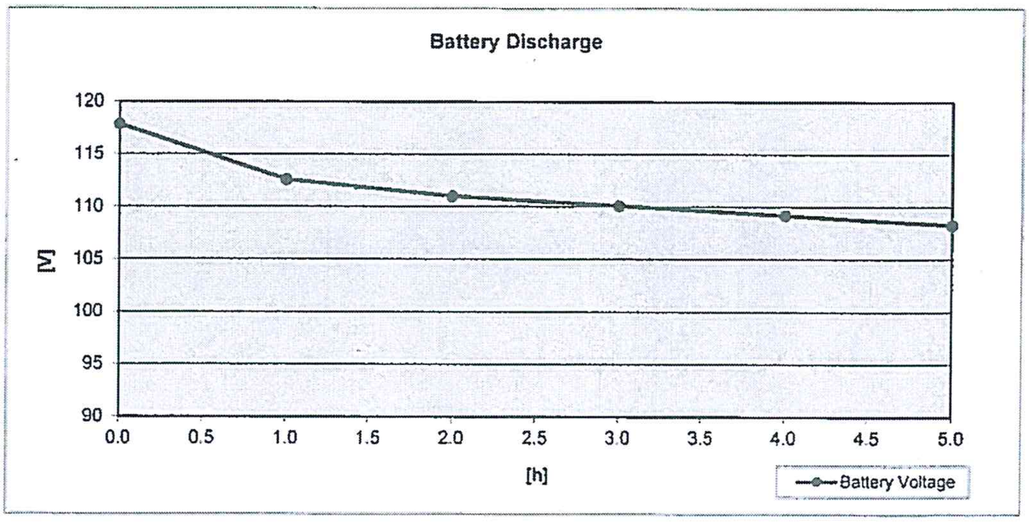
Discharge start time: 08/00 h
Discharge start date: 06/04/2021
Room start temp: 25°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage: 108.2\
Battery Name: MC260P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	117.84	47.5	25	25
08:00	1.00	112.57	46	25	25
09:00	2.00	111.02	45	25	25
10:00	3.00	110.11	47.1	25	25
11:00	4.00	109.2	47	26	25
12:00	5.00	108.29	46.8	30	28
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage	≥ 1	VDC	☑ YES	☐ NO
Battery string Tested successfully	≥ 91	VDC	☑ YES	☐ NO

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.300	1.240	1.220	1.210	1.200	1.190				
2	1.300	1.240	1.220	1.210	1.200	1.190				
3	1.300	1.240	1.220	1.210	1.200	1.190				
4	1.300	1.240	1.220	1.210	1.200	1.190				
5	1.300	1.240	1.220	1.210	1.200	1.190				
6	1.300	1.240	1.220	1.210	1.200	1.190				
7	1.300	1.240	1.220	1.210	1.200	1.190				
8	1.300	1.240	1.220	1.210	1.200	1.190				
9	1.300	1.240	1.220	1.210	1.200	1.190				
10	1.300	1.240	1.220	1.210	1.200	1.190				
11	1.300	1.240	1.220	1.210	1.200	1.190				
12	1.300	1.240	1.220	1.210	1.200	1.190				
13	1.300	1.240	1.220	1.210	1.200	1.190				
14	1.300	1.240	1.220	1.210	1.200	1.190				
15	1.300	1.240	1.220	1.210	1.200	1.190				
16	1.300	1.240	1.220	1.210	1.200	1.190				
17	1.300	1.240	1.220	1.210	1.200	1.190				
18	1.300	1.240	1.220	1.210	1.200	1.190				
19	1.300	1.240	1.220	1.210	1.200	1.190				
20	1.300	1.240	1.220	1.210	1.200	1.190				
21	1.300	1.240	1.220	1.210	1.200	1.190				
22	1.300	1.240	1.220	1.210	1.200	1.190				
23	1.300	1.240	1.220	1.210	1.200	1.190				
24	1.300	1.240	1.220	1.210	1.200	1.190				
25	1.300	1.240	1.220	1.210	1.200	1.190				
26	1.300	1.240	1.220	1.210	1.200	1.190				
27	1.300	1.240	1.220	1.210	1.200	1.190				
28	1.300	1.240	1.220	1.210	1.200	1.190				
29	1.300	1.240	1.220	1.210	1.200	1.190				
30	1.300	1.240	1.220	1.210	1.200	1.190				
31	1.300	1.240	1.220	1.210	1.200	1.190				
32	1.300	1.240	1.220	1.210	1.200	1.190				
33	1.300	1.240	1.220	1.210	1.200	1.190				
34	1.300	1.240	1.220	1.210	1.200	1.190				
35	1.300	1.240	1.220	1.210	1.200	1.190				
36	1.300	1.240	1.220	1.210	1.200	1.190				
37	1.300	1.240	1.220	1.210	1.200	1.190				
38	1.300	1.240	1.220	1.210	1.200	1.190				
39	1.300	1.240	1.220	1.210	1.200	1.190				
40	1.300	1.240	1.220	1.210	1.200	1.190				

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.290	1.240	1.220	1.210	1.200	1.190				
42	1.300	1.240	1.220	1.210	1.200	1.190				
43	1.300	1.240	1.220	1.210	1.200	1.190				
44	1.300	1.230	1.220	1.210	1.200	1.190				
45	1.300	1.240	1.220	1.210	1.200	1.190				
46	1.300	1.240	1.220	1.210	1.200	1.190				
47	1.290	1.240	1.220	1.210	1.200	1.190				
48	1.290	1.240	1.220	1.210	1.200	1.190				
49	1.290	1.240	1.220	1.210	1.200	1.190				
50	1.290	1.240	1.220	1.210	1.200	1.190				
51	1.290	1.240	1.220	1.210	1.200	1.190				
52	1.290	1.230	1.220	1.210	1.200	1.190				
53	1.290	1.230	1.220	1.210	1.200	1.190				
54	1.290	1.230	1.220	1.210	1.200	1.190				
55	1.290	1.230	1.220	1.210	1.200	1.190				
56	1.290	1.230	1.220	1.210	1.200	1.190				
57	1.290	1.230	1.220	1.210	1.200	1.190				
58	1.290	1.240	1.220	1.210	1.200	1.190				
59	1.290	1.240	1.220	1.210	1.200	1.190				
60	1.290	1.230	1.220	1.210	1.200	1.190				
61	1.290	1.240	1.220	1.210	1.200	1.190				
62	1.290	1.230	1.220	1.210	1.200	1.190				
63	1.290	1.240	1.220	1.210	1.200	1.190				
64	1.290	1.230	1.220	1.210	1.200	1.190				
65	1.290	1.230	1.220	1.210	1.200	1.190				
66	1.290	1.230	1.220	1.210	1.200	1.190				
67	1.290	1.230	1.220	1.210	1.200	1.190				
68	1.290	1.230	1.220	1.210	1.200	1.190				
69	1.290	1.230	1.220	1.210	1.200	1.190				
70	1.290	1.230	1.220	1.210	1.200	1.190				
71	1.290	1.240	1.220	1.210	1.200	1.190				
72	1.290	1.230	1.220	1.210	1.200	1.190				
73	1.290	1.240	1.220	1.210	1.200	1.190				
74	1.290	1.240	1.220	1.210	1.200	1.190				
75	1.290	1.240	1.220	1.210	1.200	1.190				
76	1.290	1.230	1.220	1.210	1.200	1.190				
77	1.290	1.230	1.220	1.210	1.200	1.190				
78	1.290	1.230	1.220	1.210	1.200	1.190				
79	1.290	1.230	1.220	1.210	1.200	1.190				
80	1.290	1.230	1.220	1.210	1.200	1.190				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC A	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.290	1.230	1.220	1.210	1.200	1.190				
82	1.290	1.230	1.220	1.210	1.200	1.190				
83	1.290	1.230	1.220	1.210	1.200	1.190				
84	1.290	1.230	1.220	1.210	1.200	1.190				
85	1.290	1.230	1.220	1.210	1.200	1.190				
86	1.290	1.240	1.220	1.210	1.200	1.190				
87	1.290	1.240	1.220	1.210	1.200	1.190				
88	1.290	1.240	1.220	1.210	1.200	1.190				
89	1.290	1.240	1.220	1.210	1.200	1.190				
90	1.290	1.240	1.220	1.210	1.200	1.190				
91	1.290	1.240	1.220	1.210	1.200	1.190				
92										
93										
94										
95										
96										
97										
98										
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120										

GUTOR

SITE ACCEPTANCE TEST

COVER SHEET

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Customer:	ENPPI/EGPC	**Contractor:**	
Street:	Agrood 30	Street:	Land Plot 144 D&144 H East Prob
Zip / Place:	Suez City	Zip / Place:	Suez City
Country:	Egypt	Country:	Egypt
Name:		Name:	Mahmoud Reda
Phone:		Phone:	
E-Mail:		E-Mail:	
Date:	04/10/2021		

Project Name: 110VDC UPS for Crude Oil Tank Farm Project

GUTOR System Type: SDC110-160-R

Supplier **GUTOR Electronics LLC**
Hardstrasse 72-74
CH-5430 Wettingen / Switzerland

Phone +41 56 437 34 34
Fax +41 56 437 34 21
www.gutor.com

Documents incl. Q490.033-

GB-1: Cover Sheet (this Page)	☑	GB-10: DC Alarm Test Sheet	☑
GB-2: General & Punch List	☑	GB-11: UPS Function Test Sheet	☐
GB-3: Installation check	☑	GB-12: DC Function Test Sheet	☑
GB-4: Rectifier test sheet	☑	GB-13: Battery Test Sheet	☑
GB-5: Inverter test sheet	☐	GB-14: Battery Initial Charge (pages)	☑
GB-6: Bypass test sheet	☐	GB-15: Battery Discharge Test (pages)	☑
GB-7: Bypass Stabilizer test sheet	☐	GB-16: Battery Specific Gravity (pages)	☐
GB-8: Options	☑	GB-17: Battery Tour	☐
GB-9: UPS Alarm Test Sheet	☐	GB-18: Costumer Specific Test	☐

Total pages

Performed by:	Whitnessed by:	Accepted by:
GUTOR Electronic LLC	**ENPPI**	**PPC**
Print: Alexander Ukhalov	Print: Ahmed Nadeem	Print: Mahmoud Ibrahim
Sign:	Sign:	Sign:
Date 2021-10-04	Date 2021-10-04	Date 2021-10-04

GUTOR	GENERAL & PUNCH LIST

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

General:

	OK	Not OK	N/A
Installation Checks	☑	☐	☐
Rectifier Test	☑	☐	☐
Options	☑	☐	☐
Alarm Test	☑	☐	☐
Functional Test	☑	☐	☐
Battery: Initial Charge	☑	☐	☐
Battery: Discharge Test	☑	☐	☐
Battery: Specific Gravity Test	☐	☐	☐

Acceptance:

	Yes	No	
System commissioned according to checklist	☑	☐	
System in Operation	☑	☐	Without load ☑
Operation Instruction supplied	☑	☐	
System handed over to Enduser	☑	☐	
System handed over without defects	☑	☐	
Software copy done (RAM1 and VQs)	☑	☐	
RAM1 Version: ENG MPU Version:	18		

Punchlist The following outstanding items have to be corrected:

by GUTOR:

...
...
...
...
...

by Customer:

...
...
...
...
...

INSTALLATIONS CHECKS

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Test Instruments

Measuring Unit	Type	Gutor Inv. Number	Next calib. Due
VAC	Fluke 187	20516	15.10.2021
VDC	Fluke 187	20516	15.10.2021
AAC	HIOKI	20515	15.10.2021
ADC	HIOKI	20515	15.10.2021
SCOPE	Fluke 123	20519	15.10.2021

General IEC 62040-3 6.6.1

	OK	Not OK
Material Complete	☑	☐
Recommandation for System Location Observed	☑	☐
Climatic recommandation observed	☑	☐
Electrical Data	☑	☐

Notes: ...

Mechanical Checks IEC 62040-3 6.6.1

	OK	Not OK	
Transportation damages	☑	☐	
Tightness check	☑	☐	
Internal Connections (inter cubicle Connections)	☑	☐	
External Connections (permanent / temporary)	☑	☐	
System earthing	☑	☐	
Temporary Upstream Fuses / Breaker rating	☑	☐	160 A
Permanent Upstream Fuses / Breaker rating	☑	☐	100 A

Notes: ...

GUTOR	RECTIFIER TEST

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

General IEC 60146-1-1 3.11

	OK	Not OK
Name Plate installed	☑	☐
Mechanical checks completed	☑	☐
AC supply available (permanent / temporary)	☑	☐
Rectifier safe for start-up	☑	☐

Electrical Tests IEC 62040-3 6.3.2 / IEC 60146-2 7.3.17

		Set Value		Actual Value	
Input Voltage	L1-L2	400	VAC	400	VAC
	L2-L3	400	VAC	399	VAC
	L1-L3	400	VAC	400	VAC
	L1 - N	230	VAC	230	VAC
	L2 - N	230	VAC	230	VAC
	L3 - N	230	VAC	229	VAC
Phase Rotation clockwise		☑ YES		☐ NO	
Frequenzy		50	Hz	50	Hz
Float Charge Voltage		127	VDC	127	VDC
Boost Charge Voltage		132	VDC	132	VDC
Ripple Voltage				0.31	VAC
Ripple Current				3.7	AAC
Low DC Warning		99	VDC	99	VDC
Low DC Shutdown		83	VDC	83	VDC
High DC Warning		137	VDC	137	VDC
High DC Shutdown		155	VDC	155	VDC
Total DC Current Limitation		160	ADC	seeFAT	ADC
Battery Current Limitation		52	ADC	51.5	ADC

Notes: ...

General IEC 62040-3 6.3.1 / 6.6.4

		OK	Not OK	N/A
P031	AC Input Voltage (door)	☑	☑	☐
P032	AC Input Voltage (door)	☑	☐	☐
P033	AC Input Voltage (door)	☑	☐	☐
S031	Incoming Phase Selector Switch (door)	☑	☐	☐
P027	Battery Voltage (door)	☑	☐	☐
P026	Battery current (door)	☑	☐	☐
H81-H86	Control Lighting (door)	☑	☐	☐
S100	Push Button Lamp Test (door)	☑	☐	☐
S101	Emergency Button (door)	☑	☐	☐
Z10	Active Harmonic Filter HMI (door)	☑	☐	☐
P102	Distribution Input Voltage	☑	☐	☐
P101	Distribution Input Current	☑	☐	☐
H100A..H112A	Control Lighting	☑	☐	☐
S300	Push Button Lamp Test	☑	☐	☐
Setting	Battery Temp Alarm	☑	☐	☐
Setting	Battery Temp Compensation	☑	☐	☐
...	Battery Monitoring System	☐	☐	☑
X061	Blocking of Boost Charge	☑	☐	☐
X062	Blocking of Charging	☑	☐	☐
A105	UnderVoltage Relay SetPoint 94V	☑	☐	☐
V032	Dropper Diode	☑	☐	☐
Q100...Q112	Rating Distribution Breakers	☑	☐	☐
Q101...Q112	Distribution Breakers Tripped	☑	☐	☐
RS45	Modbus analog	☑	☐	☐
A091	Smart Slot	☑	☐	☐
A092	NMC	☑	☐	☐
A092A	NMC Dry contact	☑	☐	☐
E800-E806	Space Heater	☑	☐	☐
E080-E086	Panel Light	☑	☐	☐
P203	Battery Current MCCB Box	☑	☐	☐
H205A	Battery Breaker Closed	☑	☐	☐
H205B	Battery Breaker Tripped	☑	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐
...	...	☐	☐	☐

Alarms IEC 62040-3 6.6.4 / IEC 60146-1-1 4.2.9

Perform lamp test and check that all LED's illuminate.

	Indication Frontpanel OK	Indication Frontpanel N/A	Relay Board	
Rectifier mains fault	☑	☐	A077-K1	
Rectifier failure	☑	☐	A078-K9	
DC out of tolerance	☑	☐	A077-K2	
Rectifier fuse blown	☑	☐	A077-K3	
Rectifier overcurrent	☑	☐	A077-K11	see FAT
Battery discharged	☑	☐	A077-K4	
Battery disconnected	☑	☐	A078-K7	
DC Earth fault	☐	☑	A077-K5	
Power supply fault	☑	☐	A077-K10	
Overtemperature	☑	☐	A077-K8	
Fan failure	☐	☐	A077-K9	
Common alarm	☑	☐	A025-X009	
Load Sharing Fault	☑	☐		
Output out of tolerance	☑	☐		
Dist. Breaker Tripped	☑	☐	A077-X013	
Dropper Fan Failure	☑	☐		
Mains Breaker Q001 On	☑	☐		
Mains Breaker Q001 Off	☑	☐		
Rectifier On	☑	☐	A077-X001	
Boost Charge On	☑	☐	A077-X002	
Rectifier Mains Ok	☑	☐		
Output Voltage Ok	☑	☐		
Output Breaker Q003 On	☑	☐		
Output Breaker Q003 Off	☑	☐		

Functional Test IEC 62040-3 6.3.6 / 6.3.4.4

Condition : Charger is working in normal operation and no alarm is pending.

- Open Rectifier mains input breaker. System goes to Battery Operation.
- Close Rectifier mains input breaker. System goes back to Normal Operation.
- Set off the System. Measure output voltage in distribution.
- Close Battery breaker or fuses.
- Set System on
- Reset alarms.

Tests performed successfully ? ☑ YES ☐ NO

Redundancy operation test performed successfully? ☑ YES ☐ NO ☐ N/A

GUTOR	BATTERY TEST

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

General IEC 62040-1-2 7.5

	OK	Not OK
Polarity Checked	☑	☐
Connectors Tight	☑	☐
Batteries marked and labeled	☑	☐
Batterie Covers fitted	☑	☐

Electrical Tests IEC 62040-1-2 4.9.20

Battery Name:	MC260P
Battery Manufacturer:	ALCAD
Battery Type:	Ni-Cd
Capacity:	260 Ah / 5 hrs
No. of cells:	91
Autonomy:	120 min.at load 85A DC ambient temperature 40°C
Manufacturer date:	July 2020
Battery Open Voltage	123 VDC (after recharging)

Notes: ...

GUTOR	BATTERY INITAL CHARGE RECORD

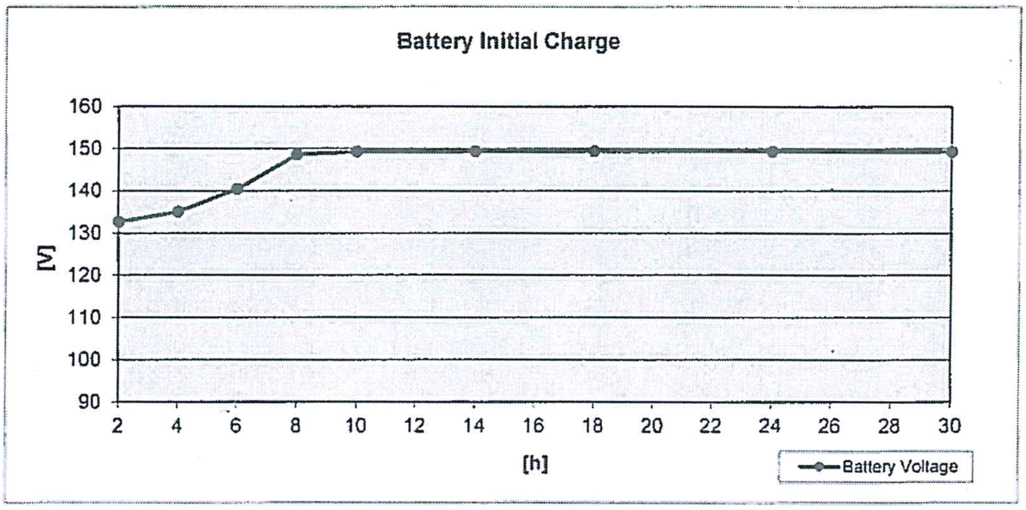
GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Charge start time:	08/00 h	Battery Type:	Ni-Cd
Charge start date:	04/04/2021	Manufacturer:	ALCAD
Room start temp:	19°C	Final Batt. Voltage:	149.2V
		Battery Name :	MC260P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Charge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
08:00	0.00	43.19	0	19	19
10:00	2.00	132.67	53	19	19
12:00	4.00	135	53	20	19
14:00	6.00	140.41	52	21	19
16:00	8.00	148.64	50	21	19
18:00	10.00	149.28	19	21	19
22:00	14.00	149.35	15	21	19
02:00	18.00	149.36	14	21	19
08:00	24.00	149.3	14	22	21
14:00	30.00	149.22	18	23	23

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	0.490	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.640
2	0.510	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.640
3	0.490	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.640
4	0.500	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.640
5	0.490	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.640
6	0.500	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.640
7	0.510	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.640
8	0.500	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.630
9	0.510	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.630
10	0.500	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.640
11	0.500	1.450	1.470	1.530	1.610	1.640	1.640	1.640	1.640	1.630
12	0.510	1.450	1.470	1.530	1.590	1.640	1.640	1.640	1.640	1.630
13	0.500	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.630
14	0.500	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.630
15	0.500	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.630
16	0.500	1.450	1.470	1.530	1.600	1.640	1.640	1.640	1.640	1.630
17	0.490	1.460	1.470	1.540	1.590	1.640	1.640	1.640	1.640	1.640
18	0.500	1.450	1.480	1.530	1.590	1.630	1.640	1.640	1.630	1.630
19	0.480	1.460	1.470	1.540	1.610	1.640	1.650	1.650	1.640	1.640
20	0.520	1.450	1.480	1.530	1.590	1.630	1.640	1.640	1.640	1.630
21	0.490	1.460	1.480	1.540	1.650	1.640	1.640	1.640	1.640	1.640
22	0.500	1.460	1.480	1.540	1.600	1.640	1.650	1.650	1.650	1.650
23	0.480	1.460	1.480	1.540	1.610	1.640	1.650	1.650	1.650	1.650
24	0.490	1.460	1.480	1.540	1.620	1.640	1.650	1.650	1.650	1.650
25	0.180	1.460	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640
26	0.480	1.460	1.470	1.550	1.660	1.640	1.640	1.640	1.640	1.640
27	0.490	1.460	1.480	1.530	1.610	1.640	1.640	1.640	1.640	1.640
28	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
29	0.490	1.460	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640
30	0.490	1.460	1.490	1.540	1.660	1.640	1.640	1.640	1.640	1.640
31	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
32	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
33	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
34	0.480	1.460	1.490	1.550	1.670	1.640	1.640	1.640	1.640	1.640
35	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
36	0.490	1.460	1.480	1.540	1.610	1.640	1.650	1.650	1.640	1.640
37	0.490	1.460	1.480	1.540	1.600	1.640	1.650	1.650	1.640	1.640
38	0.480	1.460	1.490	1.550	1.600	1.640	1.640	1.640	1.640	1.640
39	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
40	0.500	1.460	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640

Q490.033 GB-13	Observe Safety Precautions	Charger B

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	0.480	1.460	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640
42	0.490	1.460	1.480	1.550	1.610	1.640	1.650	1.650	1.650	1.650
43	0.480	1.460	1.490	1.530	1.660	1.640	1.640	1.640	1.640	1.640
44	0.490	1.460	1.490	1.540	1.650	1.640	1.640	1.650	1.640	1.640
45	0.480	1.460	1.480	1.540	1.610	1.650	1.650	1.650	1.650	1.650
46	0.490	1.460	1.490	1.540	1.610	1.650	1.650	1.650	1.650	1.650
47	0.490	1.460	1.490	1.550	1.650	1.640	1.640	1.640	1.640	1.650
48	0.500	1.450	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640
49	0.480	1.460	1.480	1.540	1.600	1.640	1.640	1.640	1.640	1.640
50	0.010	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
51	0.490	1.460	1.480	1.540	1.610	1.640	1.640	1.640	1.640	1.640
52	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
53	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
54	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
55	0.480	1.460	1.490	1.550	1.670	1.640	1.640	1.640	1.640	1.640
56	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
57	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
58	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
59	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
60	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
61	0.490	1.460	1.490	1.540	1.610	1.640	1.640	1.640	1.640	1.640
62	0.480	1.460	1.490	1.550	1.670	1.650	1.640	1.640	1.640	1.640
63	0.490	1.460	1.490	1.540	1.620	1.640	1.640	1.640	1.640	1.640
64	0.040	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
65	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
66	0.500	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.650	1.640
67	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.650
68	0.480	1.460	1.490	1.550	1.670	1.650	1.650	1.650	1.650	1.640
69	0.480	1.460	1.490	1.550	1.660	1.650	1.650	1.650	1.650	1.640
70	0.490	1.460	1.490	1.550	1.670	1.640	1.640	1.640	1.640	1.640
71	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
72	0.490	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
73	0.500	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
74	0.490	1.460	1.480	1.550	1.660	1.640	1.640	1.640	1.640	1.640
75	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
76	0.490	1.460	1.490	1.540	1.620	1.640	1.640	1.640	1.640	1.640
77	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
78	0.490	1.460	1.490	1.550	1.650	1.640	1.640	1.640	1.640	1.640
79	0.480	1.460	1.490	1.550	1.670	1.640	1.640	1.640	1.640	1.640
80	0.500	1.460	1.490	1.550	1.650	1.640	1.640	1.640	1.630	1.640

GUTOR

BATTERY INITAL CHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	22:00:00	02:00:00	08:00:00	14:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	0.490	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
82	0.500	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
83	0.500	1.460	1.480	1.540	1.630	1.640	1.640	1.640	1.630	1.640
84	0.490	1.460	1.490	1.550	1.660	1.650	1.640	1.640	1.640	1.640
85	0.480	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
86	0.510	1.460	1.490	1.550	1.620	1.640	1.640	1.640	1.640	1.640
87	0.470	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
88	0.490	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
89	0.500	1.460	1.480	1.540	1.600	1.640	1.640	1.640	1.640	1.640
90	0.460	1.460	1.490	1.550	1.660	1.640	1.640	1.640	1.640	1.640
91	0.450	1.460	1.490	1.550	1.650	1.640	1.640	1.640	1.640	1.640
92										
93										
94										
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GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

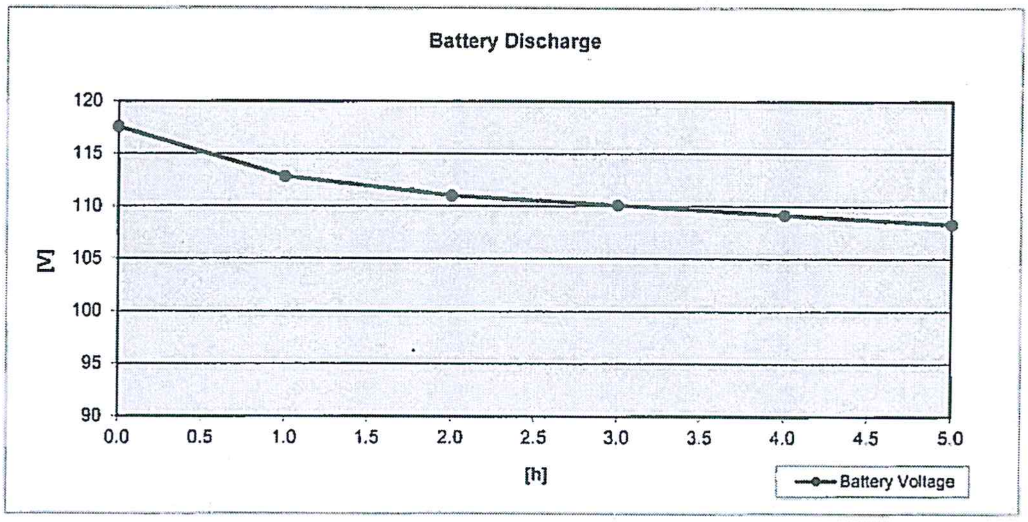
Discharge start time: 08/00 h
Discharge start date: 06/04/2021
Room start temp: 27°C

Battery Type: Ni-Cd
Manufacturer: ALCAD
Final Batt. Voltage: 108.2\
Battery Name: MC260P

IEC 62040-3 6.2.5

Clock [hh:mm]	Time [h]	Battery Voltage [V]	Discharge Current [A]	Average Cell Temp. [°C]	Average Room Temp. [°C]
07:00	0.00	117.55	49	27	27
08:00	1.00	112.84	47	27	27
09:00	2.00	111.02	46	27	27
10:00	3.00	110.11	49	28	27
11:00	4.00	109.2	50	29	29
12:00	5.00	108.29	49	31	29
13:00	6.00				
14:00	7.00				
15:00	8.00				
16:00	9.00				

Cell no. for the "Average Cell Temp.": Center of 13,14,41,42



Each battery block voltage	≥ 1	VDC	☑ YES	☐ NO
Battery string Tested successfully	≥ 91	VDC	☑ YES	☐ NO

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
1	1.300	1.240	1.220	1.210	1.200	1.190				
2	1.300	1.240	1.220	1.210	1.200	1.190				
3	1.300	1.240	1.220	1.210	1.200	1.190				
4	1.300	1.240	1.220	1.210	1.200	1.190				
5	1.300	1.240	1.220	1.210	1.200	1.190				
6	1.300	1.240	1.220	1.210	1.200	1.190				
7	1.300	1.240	1.220	1.210	1.200	1.190				
8	1.300	1.240	1.220	1.210	1.200	1.190				
9	1.300	1.240	1.220	1.210	1.200	1.190				
10	1.300	1.240	1.220	1.210	1.200	1.190				
11	1.300	1.240	1.220	1.210	1.200	1.190				
12	1.300	1.240	1.220	1.210	1.200	1.190				
13	1.300	1.240	1.220	1.210	1.200	1.190				
14	1.300	1.240	1.220	1.210	1.200	1.190				
15	1.300	1.240	1.220	1.210	1.200	1.190				
16	1.300	1.240	1.220	1.210	1.200	1.190				
17	1.290	1.240	1.220	1.210	1.200	1.190				
18	1.290	1.240	1.220	1.210	1.200	1.190				
19	1.290	1.240	1.220	1.210	1.200	1.190				
20	1.290	1.240	1.220	1.210	1.200	1.190				
21	1.290	1.240	1.220	1.210	1.200	1.190				
22	1.290	1.240	1.220	1.210	1.200	1.190				
23	1.290	1.240	1.220	1.210	1.200	1.190				
24	1.290	1.240	1.220	1.210	1.200	1.190				
25	1.290	1.240	1.220	1.210	1.200	1.190				
26	1.290	1.240	1.220	1.210	1.200	1.190				
27	1.290	1.240	1.220	1.210	1.200	1.190				
28	1.290	1.240	1.220	1.210	1.200	1.190				
29	1.290	1.240	1.220	1.210	1.200	1.190				
30	1.290	1.240	1.220	1.210	1.200	1.190				
31	1.290	1.240	1.220	1.210	1.200	1.190				
32	1.290	1.240	1.220	1.210	1.200	1.190				
33	1.290	1.240	1.220	1.210	1.200	1.190				
34	1.290	1.240	1.220	1.210	1.200	1.190				
35	1.290	1.240	1.220	1.210	1.200	1.190				
36	1.290	1.240	1.220	1.210	1.200	1.190				
37	1.290	1.240	1.220	1.210	1.200	1.190				
38	1.290	1.240	1.220	1.210	1.200	1.190				
39	1.290	1.240	1.220	1.210	1.200	1.190				
40	1.290	1.240	1.220	1.210	1.200	1.190				

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
41	1.290	1.240	1.220	1.210	1.200	1.190				
42	1.290	1.240	1.220	1.210	1.200	1.190				
43	1.290	1.240	1.220	1.210	1.200	1.190				
44	1.290	1.240	1.220	1.210	1.200	1.190				
45	1.290	1.240	1.220	1.210	1.200	1.190				
46	1.290	1.240	1.220	1.210	1.200	1.190				
47	1.290	1.240	1.220	1.210	1.200	1.190				
48	1.290	1.240	1.220	1.210	1.200	1.190				
49	1.290	1.240	1.220	1.210	1.200	1.190				
50	1.290	1.240	1.220	1.210	1.200	1.190				
51	1.290	1.240	1.220	1.210	1.200	1.190				
52	1.290	1.240	1.220	1.210	1.200	1.190				
53	1.290	1.240	1.220	1.210	1.200	1.190				
54	1.290	1.240	1.220	1.210	1.200	1.190				
55	1.290	1.240	1.220	1.210	1.200	1.190				
56	1.290	1.240	1.220	1.210	1.200	1.190				
57	1.290	1.240	1.220	1.210	1.200	1.190				
58	1.290	1.240	1.220	1.210	1.200	1.190				
59	1.290	1.240	1.220	1.210	1.200	1.190				
60	1.290	1.240	1.220	1.210	1.200	1.190				
61	1.290	1.240	1.220	1.210	1.200	1.190				
62	1.290	1.240	1.220	1.210	1.200	1.190				
63	1.290	1.240	1.220	1.210	1.200	1.190				
64	1.290	1.240	1.220	1.210	1.200	1.190				
65	1.290	1.240	1.220	1.210	1.200	1.190				
66	1.290	1.240	1.220	1.210	1.200	1.190				
67	1.290	1.240	1.220	1.210	1.200	1.190				
68	1.290	1.240	1.220	1.210	1.200	1.190				
69	1.290	1.240	1.220	1.210	1.200	1.190				
70	1.290	1.240	1.220	1.210	1.200	1.190				
71	1.290	1.240	1.220	1.210	1.200	1.190				
72	1.290	1.240	1.220	1.210	1.200	1.190				
73	1.290	1.240	1.220	1.210	1.200	1.190				
74	1.290	1.240	1.220	1.210	1.200	1.190				
75	1.290	1.240	1.220	1.210	1.200	1.190				
76	1.290	1.240	1.220	1.210	1.200	1.190				
77	1.290	1.240	1.220	1.210	1.200	1.190				
78	1.290	1.240	1.220	1.210	1.200	1.190				
79	1.290	1.240	1.220	1.210	1.200	1.190				
80	1.290	1.240	1.220	1.210	1.200	1.190				

GUTOR

BATTERY DISCHARGE RECORD

GUTOR Ref. No.:	1200069010 SDC B	Client Tag No.:	030-SUB-DCUPS-1

Time / h:	07:00:00	08:00:00	09:00:00	10:00:00	11:00:00	12:00:00	13:00:00	14:00:00	15:00:00	16:00:00
No.	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block	V / block
81	1.290	1.240	1.220	1.210	1.200	1.190				
82	1.290	1.240	1.220	1.210	1.200	1.190				
83	1.290	1.240	1.220	1.210	1.200	1.190				
84	1.290	1.240	1.220	1.210	1.200	1.190				
85	1.290	1.240	1.220	1.210	1.200	1.190				
86	1.290	1.240	1.220	1.210	1.200	1.190				
87	1.290	1.240	1.220	1.210	1.200	1.190				
88	1.290	1.240	1.220	1.210	1.200	1.190				
89	1.290	1.240	1.220	1.210	1.200	1.190				
90	1.290	1.240	1.220	1.210	1.200	1.190				
91	1.290	1.240	1.220	1.210	1.200	1.190				
92										
93										
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System ID	030-EL-006
System Description	**Substation AC/DC UPS's and Batteries System**

12.10- Electrical Pre-Commissioning Check Lists

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-BP	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-BP	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-1B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-1B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	N/A	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	N/A	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)		
18	Calibration test certificate of testing equipment to be checked.		

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-1A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-ACUPS-1A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	Sobh [signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	**CONST. CONTRACTOR**	**ENPPI**	**CUSTOMER**
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C6-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C6-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C6-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C6-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C5-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C5-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Ⓡ Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C4-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C4-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C3-030-SUB-DCUPS-1	**AREA**	: 30

REF. DWGs/DOCs :

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C3-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE		[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]	® Islam Sherif [signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif (stamp)	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		(R) Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-ACUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]	® Islam Sherif [signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C5-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C5-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C4-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C4-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-1-BAT-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	**CONST. CONTRACTOR**	**ENPPI**	**CUSTOMER**
NAME			
SIGNATURE	[signature]	Islam Sherif ® [signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D1-030-SUB-DCUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]	Islam Sherif [signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-DCUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-CB-A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-1-BAT-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-DCUPS-1B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-DCUPS-1B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-DCUPS-1A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	**CONST. CONTRACTOR**	**ENPPI**	**CUSTOMER**
NAME			
SIGNATURE	[signature]	Islam Sherif [signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P-030-SUB-DCUPS-1A	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	**CONST. CONTRACTOR**	**ENPPI**	**CUSTOMER**
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: D2-030-SUB-ACUPS-CB-B	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Check that buried cables are correctly covered and protected.	N/A	
13	Trench markers to be checked w.r.t approved documents.	N/A	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	N/A	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be-checked.	✓	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
19	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

(*) Refer to table (III).

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

INSULATION TEST

LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

NOTES:

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P1-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P1-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P1-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: P1-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]	® Islam Sherif [signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C1-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C1-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

10000-Z-000-EK7-TMP-0017 (03/14)

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
BATTERY & CHARGER ASSEMBLIES
EL-08 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	**BATTERY CHARGER AND D.C DISTRIBUTION PANEL:**		
2.1	Check equipment assembly for alignment, levelness and foundation fixing details.	✓	
2.2	Check battery charger panels nameplate and tag identification for all equipment included.	✓	
2.3	Inspect charger for mechanical damage.	✓	
2.4	Check enclosure for moisture leaks and openings which may allow dirt accumulation.	✓	
2.5	Ventilation openings are not blocked off and are fitted with gratings and insect nets.	✓	
2.6	Remove any accidental connections between components.	✓	
2.7	Remove any accidental connections between phases and from phases to ground.	✓	
2.8	Check equipment earthing connections to the earthing system.	✓	
2.9	Check connection of gland plate to the earthing busbar.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		[stamp] ...m Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
BATTERY & CHARGER ASSEMBLIES
EL-08 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
2.10	All equipment to be cleaned internally and externally.	✓	
2.11	Check all components such as: meters, lamps ...etc, w.r.t approved drawings.	✓	
2.12	Check phase sequence of battery charger incoming feeders.	✓	
2.13	All supports needed for power and control cables to be checked.	✓	
2.14	Unused cable entries to be plugged correctly.	✓	
2.15	All internal wiring connections are secure.	✓	
2.16	Check rating & operation of MCCBs, MCBs and fuse.	✓	
3	**BATTERIES:**		
3.1	Inspect Batteries for mechanical damage.	✓	
3.2	Confirm battery temperature sensor is correctly installed.	✓	
3.3	Check batteries type according to approved documents.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME	[signature]	Islam Sherif ® (stamp)	
SIGNATURE		[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
BATTERY & CHARGER ASSEMBLIES
EL-08 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
3.4	Batteries are installed as indicated in the design.	✓	
3.5	Inspect all batteries accessories.	✓	
3.6	Check the availability of the Battery Electrolyte.	✓	
3.7	Check batteries & battery racks cleaning.	✓	
3.8	Batteries rack to be connected to the earthing system.	✓	
3.9	Inspect cell-to-cell interconnection and tightness of bolted connections.	✓	
3.10	Terminals are clean, well tightened, fitted with protective caps and cover with protective coating (grease).	✓	
4	**BATTERY BOX:**		
4.1	Check battery box name plate and tag identification for all equipment included.	✓	
4.2	Unused cable entries to be plugged correctly.	✓	
4.3	Check connection of gland plate to the earthing busbar.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]		[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
BATTERY & CHARGER ASSEMBLIES
EL-08 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
4.4	Check equipment earthing connections to the earthing system.	✓	
4.5	All equipment to be cleaned internally and externally.	✓	
5	**SIGNALLING:**		
5.1	Check signal interchange between all system components.	✓	
6	**DOCUMENTATION:**		
6.1	Confirm zone certification of for all electrical fittings installed in battery room including exhaust fans.	✓	
6.2	Equipment test report and inspection certificate to be checked. Acceptance criteria values of the above mentioned tests to be revised.	✓	
6.3	Check availability of vendor documents, including commissioning and start-up instructions.	N/A	
6.4	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]		[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
AC UNINTERRUPTABLE POWER SUPPLY
EL-12 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction Punch List To Be Checked.	✓	
2	**BATTERY CHARGER AND D.C DISTRIBUTION PANEL:**		
2.1	Check equipment assembly for alignment, levelness and foundation fixing details.	✓	
2.2	Check battery charger panels nameplate and tag identification for all equipment included.	✓	
2.3	Inspect charger for mechanical damage.	✓	
2.4	Ventilation openings are not blocked off and are fitted with gratings and insect nets.	✓	
2.5	Remove any accidental connections between components.	✓	
2.6	Remove any accidental connections between phases and from phases to ground.	✓	
2.7	Check rating & operation of MCCBs, MCBs and fuse.	✓	
2.8	Check equipment earthing connections to the earthing system.	✓	
2.9	Check connection of gland plate to the earthing busbar.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
AC UNINTERRUPTABLE POWER SUPPLY
EL-12 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
2.10	All equipments to be cleaned internally and externally.	✓	
2.11	Check all components such as: meters, lamps...etc, w.r.t approved drawings.	✓	
2.12	Check phase sequence of battery charger incoming feeders.	✓	
2.13	All supports needed for power and control cables to be checked.	✓	
2.14	Unused cable entries to be plugged correctly.	✓	
2.15	Check enclosure for moisture leaks and openings which may allow dirt accumulation.	✓	
2.16	All internal wiring connections are secure.	✓	
2.17	Check availability of vendor documents, including commissioning and start-up instructions.	N/A	
3	**INVERTER & STATIC SWITCH COMPARTMENTS:**		
3.1	Nameplate rating verified and equipment tag number.	✓	
3.2	Check equipment earthing connections.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
AC UNINTERRUPTABLE POWER SUPPLY
EL-12 A

PROJECT TITLE : EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)

PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30

REF. DWGs/DOCs :

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
3.3	Panel is free from mechanical damage.	✓	
3.4	Check doors and panel close properly and there are keys for all locks.	✓	
3.5	Ventilation openings are not blocked off and are fitted with gratings and insect nets.	✓	
3.6	Wire identifications and cable markers to be checked w.r.t cable list.	✓	
3.7	Check enclosure for moisture leaks and openings which may allow dirt accumulation.	✓	
3.8	Check all components are correctly rated, securely fixed and free from damage.	✓	
3.9	All internal wiring connections are secure and to be checked w.r.t supplier document.	✓	
4	**BATTERIES:**		
4.1	Check batteries type according to approved documents.	✓	
4.2	Batteries are installed as indicated in the design.	✓	
4.3	Inspect all batteries accessories.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]		[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
AC UNINTERRUPTABLE POWER SUPPLY
EL-12 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
4.4	Inspect cell-to-cell interconnection and tightness of bolted connections.	✓	
4.5	Terminals are clean, well tightened and fitted with protective caps.	✓	
4.6	Inspect Batteries for mechanical damage.	✓	
4.7	Check the availability of the Battery Electrolyte.	✓	
4.8	Check batteries & battery racks cleaning.	✓	
4.9	Batteries rack to be connected to the earthing system.	✓	
5	**BATTERY BOX:**		
5.1	Check battery box nameplate and tag identification for all equipment included.	✓	
5.2	Check equipment earthing connections to the earthing system.	✓	
5.3	All equipments to be cleaned internally and externally.	✓	
5.4	Check connection of gland plate to the earthing busbar.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]		[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
AC UNINTERRUPTABLE POWER SUPPLY
EL-12 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-ACUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
5.5	Unused cable entries to be plugged correctly.	✓	
6	**SIGNALLING:**		
6.1	Check signal interchange between all system components.	✓	
7	**DOCUMENTATION:**		
7.1	Confirm zone certification of for all electrical fittings installed in battery room including exhaust fans.	✓	
7.2	Equipment test report and inspection certificate to be checked. Acceptance criteria values of the above mentioned tests to be revised.	✓	
7.3	Equipment test report and inspection certificate to be checked. Acceptance criteria values of the above mentioned tests to be revised.	✓	
7.4	Check availability of vendor documents, including commissioning and start-up instructions.	N/A	
7.5	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME			
SIGNATURE	[signature]		[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables (power/ control) are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, tightness, termination and joints of cables are correctly executed.	✓	
7	Check where conductors have been terminated using crimped connections; ensure the correct size and type of crimping lugs.	✓	
8	Check that the bending radius of cables is not less than the minimum established.	✓	
9	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
10	Tie wraps to be used for cable and wires fixation.	✓	
11	Cable connections shall be torque tested.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

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PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: 030-SUB-DCUPS-01	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Check that buried cables are correctly covered and protected.	N/A	
13	Trench markers to be checked w.r.t approved documents.	N/A	
14	Check cable glands for tightness & check the correct type of gland has been used for the size and type of installed cables.	✓	
15	Inspect cable laid in trenches, segregation and protection.	N/A	
16	Cables to be tested (continuity/insulation resistance). (*)	✓	
17	Equipment test report and inspection certificate to be-checked.	✓	
18	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
19	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

(*) Refer to table (III).

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
LOW VOLTAGE CABLES
EL-30 A

INSULATION TEST

LOW VOLTAGE CABLES

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
1000V	1000V	200

TABLE [III]

NOTES:

Manufacture's test voltage & minimum values for insulation resistance should be referenced.

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PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C1-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C1-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C2-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C2-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C2-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		® Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C2-030-SUB-DCUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT OK/NA/PL	PL ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C3-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
1	Construction punch list to be checked.	✓	
2	Check cables are correctly fixed to trays and supports.	✓	
3	Check cables through walls or ceilings are correctly sealed.	✓	
4	Check that all cables are installed in accordance with cable lists and approved documents.	✓	
5	Check identification tags of all conductors and wires.	✓	
6	Check connection, termination and joints of cables are correctly executed.	✓	
7	Inspect cables for jacket damage.	✓	
8	Ensure that the correct size and type of crimping lugs have been used.	✓	
9	Check that the bending radius of cables is not less than the minimum established.	✓	
10	Cable markers to be installed before covering buried cables or cables in cable trays.	✓	
11	Tie wraps to be used for cable and wires fixation.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

Enppi

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

PROJECT TITLE	: EGPC Crude Oil Tank Farms Project, Agrood Area 30 (Module-01)		
PROJECT NUMBER	: 1251-100	**DISCIPLINE**	: Electrical
SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SYSTEM ID**	: 030-EL-006
SUB-SYSTEM NAME	: Substation AC/DC UPS's and Batteries System	**SUB-SYSTEM ID**	: 030-EL-006
ITEM TAG No.	: C3-030-SUB-ACUPS-1	**AREA**	: 30
REF. DWGs/DOCs	:		

No.	DESCRIPTION	RESULT	PL
		OK/NA/PL	ITEM No.
12	Trench markers to be checked w.r.t approved documents.	N/A	
13	Check cable glands for tightness and check the correct type of gland has been used for the size and type of installed cables.	✓	
14	Inspect cable laid in trenches, segregation and protection.	N/A	
15	Cables to be tested (continuity/insulation resistance).(*)	✓	
16	Equipment test report and inspection certificate to be-checked.	✓	
17	Check availability of vendor documents, including commissioning and start-up instructions. (If Any)	N/A	
18	Calibration test certificate of testing equipment to be checked.	✓	

REMARKS AND OBSERVATIONS :

OK: NO OBJECTION, NA: NOT APPLICABLE, PL: PUNCH LIST.

COMPANY	CONST. CONTRACTOR	ENPPI	CUSTOMER
NAME		Islam Sherif ®	
SIGNATURE	[signature]	[signature]	[signature]
DATE			

PRE-COMMISSIONING CHECK LIST
MEDIUM VOLTAGE CABLES
EL-31 A

INSULATION TEST

EL-31 A

CABLE VOLTAGE LEVEL	D.C TEST VOLTAGE	MINIMUM INSULATION RESISTANCE (M.OHMS).
3.3kV	2500V	200
6.6kV & Above	5000V	200

TABLE [I]

NOTES:

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

12.11- Electrical Supplier Check Lists & Reports

13- Electrical Commissioning

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

13.01- Electrical -Commissioning Check Lists

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

13.02- Electrical Supplier Check Lists & Reports

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

14- Red Marked-up Drawings

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

14.01- P&ID

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

14.02- Instrumentation Drawings

System ID	030-EL-006
System Description	Substation AC/DC UPS's and Batteries System

14.03- Electrical Drawings